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ORIGINAL ARTICLES.

THE PRETUBERCULAR AND PREBACILLARY STAGES OF CONSUMPTION.

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The steady decrease in the mortality from consumption during the years of the decade just passed is attributable not so much to improved methods of treatment as to a better knowledge of the disease itself and the measures which have been put forth toward its prevention. The importance of an early diagnosis in such cases as must arise is apparent.

In attempting a paper under the difficult title of "Pretubercular and Prebacillary Stages," I will not arouse unnecessary antagonisms or limit the freedom of preconceived opinions by essaying to state just what part the bacillus plays in this degenerative process. The pathological enthusiasm aroused by the discovery of Koch's bacillus should not blind us to the fact that there are other elements than the bacillus and the changes which by its presence are wrought in the tissues and fluids where it domiciles. There are other elements, I say, necessary to the production of this disease.

The bacillus is ubiquitous, yet only a part of the human race falls victim to its ravages. The individual equation is the necessary factor. Some individual weakness is necessary to be added to the bacillus. This weakness may be inherited or acquired. The question of hereditary influences has already been ably considered by Dr. Ruedi. Many persons with inherited tendencies escape the disease, even after prolonged exposure, until some impairment of the general health opens the door to the invasion of infecting bacilli. Certain inherent conditions, I believe, followed by certain incipient stages constituting a negative intoxication (recognizable), precede the developed symptoms of established phthisis, just as a stage of intoxication precedes the lethal symptoms of a large dose of opium.

There is something in the physique of these individuals necessary to the production of phthisis—something preceding bacillary infection—something which realizes the fact of that infection and makes it possible, and a something which, being the "personal equation," determines the course, character and effect of such infection. This condition of health I have dared to call "the pretubercular stage." It has been variously described in the past as, by Dr. Rokitansky, "the phthisical habitus;" by others as the "tuberculous predisposition," "susceptibility," "favorable soil," "lack of resisting power," "tubercular diathesis," "good culture medium." There are still other forms of expressing this same condition of ill health. "That condition which makes the human tissues a receptive soil—a favorable culture

medium for the tubercle bacillus—that condition which of old was called 'diathesis' and now 'susceptibility,' is itself a disease—a departure from the *normal*—and I believe it to be the most important element in the morbid complexus termed tuberculosis. It is the element requiring the greatest care in prophylaxis—the most intelligent and faithful treatment." *

But what do these terms mean? Metschnikoff attempted to show that it is all summed up in a lack of leucocytes to destroy the elements of contagion—a weakness in the microbe-killing activity of these blood scavengers. Others claim that "susceptibility" consists of a want of certain bio-chemical constituents of the tissues, fluids and blood plasma. A generally embryonal condition of the connective tissues—abridgment of the lymph spaces and increase in the solids of blood. Dr. Cutler advances the theory of "acid dyspepsia"—an acetic-acid fermentation resulting in a yeasty condition of the blood. Others admit that "inherent weakness" is modified tuberculosis, the bacillus being transmitted with the ovum, lying dormant for years and held in abeyance awaiting a favorable opportunity to develop. Such opportunity is afforded when the surrounding tissues are enfeebled, either by an injury or by some "critical period" of life, when it develops into genuine tuberculosis.

These definitions and theories as to the pretubercular stage are inadequate. We seek, therefore, to overcome the difficulty by defining the condition as one of impaired or defective nutrition.

In tuberculosis generally the first symptom is loss of weight. This is usually the most prominent symptom and one which is directly proportionate to the progress or severity of the disease. Nutrition is defective in quantity, leading to atrophy and wasting; it is altered in quality, causing deterioration and softening of the tissues.

The diagnosis of this condition is most difficult. Incipient tuberculosis, simulating as it does almost every other disease, is not easily distinguished, especially from typhoid fever. It is often mistaken for gastric disturbance or rectal stricture.

The changes in the lungs themselves may be small or great, but they are generally confined to the periphery, where it is not noticeable; or, where the bronchial tubes are concerned, a mistaken diagnosis of bronchitis is made. But as in the first and second stages the disease is so thoroughly masked at times as to awaken no suspicion, so in the prebacillary stage the same condition obtains, and the diagnosis should be made objectively. The rational signs are of great weight.

After catarrhal pneumonia, or "la grippe," or concomitant with a chronic irritation due to foreign substances inhaled incidental to an occupation like cigar-making or coal-mining or any sort of mill work, we find a condition aptly described as "chronic inflammation," and vulgarly known as "phthisic," "winter cough," etc. We know the change in the pulmonary tissues consists as follows: "Cells, the product of inflammation, accumulate in the alveoli and bronchi and crowd upon each other, becoming densely packed, and thus by mutual pressure are destroyed and cause at the same time decay or injury to lung tissue."

Such conditions we know present but little auscultatory information, but auscultation is not diagnosis. As an eminent authority has expressed it, "I esteem rational symptoms as of greater weight than those signs eliminated by auscultation."

Associated with progressive loss of weight, nutrition suffers from a loss of appetite and the well-known languor which precedes typhoid fever. Patients have often said to me, "I feel exhausted when I awake. A few hours in the early morning I feel stronger, at eleven o'clock exhausted again, and the same at four in the afternoon." One cannot claim that such a statement of symptoms is pathognomonic of any particular disease, but I do say it is *especially true of phthisis.*

Perhaps in no class of cases is the element of lassitude so marked and so diagnostic as in children, who, though they may not be the offspring of tuberculous ancestry, may have the so-called predisposition stamped upon them in belonging to a large family of children born of a mother whose periods of lactation lapped over the periods of pregnancy four or five months each year.

The physician who fails to diagnose the pretubercular stage with incipiency in such a child at any time when loss of

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*S. Solis Cohen.

weight and appetite and languor are the symptoms, or when the child has a chronic cough incidental to measles or pertussis, commits a double wrong—to the physician's judgment and to the patient's confidence.

It may not be amiss to remark again upon the importance of careful diagnosis in these cases of measles and whooping-cough. When measles exhibit a decided tendency to pulmonary inflammation, the distance to phthisis is not great. The respiratory murmurs may never return to normal clearness. Associated with the frequent relapses into bronchial troubles, we find induration and caseation with diminished expansion. This is evidenced by a short but easy cough, rapid respiration without evident dyspnœa. This, however, is not the time nor the occasion for a description of the tuberculous child.

I will not attempt to discuss at length the histology or pathology of this condition of ill health. Nor will I take up the subject of treatment, which is practically that of phthisis itself and will be discussed in a succeeding paper. I pass at once to my conclusions:

That there is a pretubercular stage.

That it is something more than mere predisposition or susceptibility.

That it is a mitigated form of consumption.

That it is either hereditary or acquired.

That, other things being equal, continued loss of weight is suspicious of oncoming tuberculosis.

That the keynote of this condition is impaired nutrition.

I deprecate the preponderating importance given to the bacillus, whereas this condition of health occupies the position of a primary etiological factor to which the bacillus is secondary in importance.

I deprecate the supercilious superficiality with which many physicians veil the seriousness of this condition under the name of "bronchitis."

SCIATICA (?)—MANIA A POTU—PLEURITIS WITH EFFUSION OCCURRING IN PHTHISIS—TUBERCULAR OR SYPHILITIC LARYNGITIS.*

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This patient exhibits an interesting and puzzling condition, and I present him, not to illustrate a well-marked and logically treated clinical type, but for the sake of some valuable hints which may be of help in practice.

The patient is Irish; aged forty-five; single; twenty years in this country. His family history has no bearing on the case except perhaps that one brother died of Bright's disease at fifty. Six years ago he had a chancre, which was followed after five months by a general cutaneous eruption lasting eight months. At this time he had pain in the left hip, running to the knee, and several similar attacks have followed at irregular intervals. On entering the hospital twelve days ago he complained of pain and tenderness in the popliteal space, inability to extend the thigh, and the left leg was somewhat atrophied. He has always been a drinking man and has occasionally gone on a spree.

The pain and the immobility of the hip were so marked yesterday that I asked Dr. Park to see the patient, to determine if there was anything in the way of an actual lesion of the joint. No positive signs of a surgical condition of the joint were found, though it seemed to me from the way in which he held the thigh that there might be some effusion. The temperature at no time has reached 99°, which enables us to exclude any high grade of inflammation, rheumatic, septic, etc.

At this time and for some days previously the patient would swing the entire trunk rather than let us move the hip joint, which was held rigidly in a state of semi-extension. Having made a probable exclusion of disease in the joint itself, we

*Clinical lecture at Buffalo General Hospital.

looked further for an explanation of his symptoms. Midway between the tuberosity of the ischium and the trochanter major the slightest pressure caused great agony. This suggested sciatica, but today the signs are contradictory, though I believe that the symptoms manifested by the patient have been perfectly genuine. I can now move the leg and thigh quite freely without causing pain. I can extend the knee and flex the thigh—in fact, the patient is more comfortable with the thigh moderately flexed toward the abdomen than in the ordinary position while sitting. Yet this is the position in which the sciatic nerve is stretched, and if there were sciatica we should expect more comfort from relaxing the nerve than from extending it. The best non-operative means of stretching the sciatic nerve is to raise the thigh as I am doing now, but to a higher level. It seems to me that there is no atrophy of the limb, nor do I detect any loss of muscular tone.

Although there was a pretty clear history of syphilis, I did not care to put the patient upon specific treatment till more positive manifestations occurred. He was given Rochelle salts every morning, was kept in bed and counter-irritation was made over the hip. For the first five or six days he made no improvement. Then bitartrate of potassium was given in small doses (1. gm. t.i.d.). Under this treatment, though I do not pretend to say due to it, he has improved. In this treatment we were influenced by the fact that the urine contained albumin and granular casts. The albumin has diminished in quantity and there is no evidence of general dropsy. The patient has had prolonged antisyphilitic treatment in the past, and he lacks a very characteristic symptom of the joint pains of syphilis, namely, that the pain is not greater at night.

I would like to correct a notion that one might naturally form from hospital studies and from remarks often made as to the frequency of syphilis. If your practice is among the better classes of the community you will not meet with more than a few new cases of this disease in a year, although the cases that you do have will last a long time, so that you will practically always have them with you. The disease pervades all ranks of society, sparing neither prince nor pauper, but it is in the improvident class from which hospital wards are recruited that syphilis is particularly rife.

MANIA A POTU.

This patient entered the hospital suffering from acute alcoholism. He later became delirious and unmanageable and passed through quite a long course of delirium tremens. Once he was almost recovered, but about ten days ago he had a relapse. While he has again recovered from the active delirium, he is in an excited state which I think calls for treatment in an insane asylum. He is gentle, but he labors under delusions, and you have noted that he has twice attempted to climb the stairs leading up into the amphitheater. He keeps asking me about things which I have never said to him, and he often speaks to people who are not present.

In the majority of cases of insanity it is not easy to fix absolutely the cause, but here alcoholism is plainly responsible. Alcohol may bring about actual physical lesions in the brain or its membranes, especially in the way of pachymeningitis, or the disturbance may be functional. This patient has shown no signs of an inflammatory process. His temperature has been normal. I do not believe that he is in the first stage of paresis, but think that he will recover from what will, I hope, be a lesson to him not to repeat his previous experiments with alcohol.

Such cases often resemble those of locomotor ataxia, but in this instance there is no difficulty in the differential diagnosis. The gait is not very uncertain, the patient can stand and walk with his eyes shut, and his reflexes are not lost. His general condition is good and the prognosis is therefore favorable.

PLEURITIS WITH EFFUSION OCCURRING IN PHTHISIS.

This patient entered the hospital nearly seven weeks ago with a very abundant pleuritic effusion in the right chest. She is thirty-six years of age, a housewife, of native birth. Her father is alive and well; her mother died of consumption at thirty-eight years of age. Of two brothers and three sisters, a brother died of consumption and a sister of erysipelas. The patient herself was healthy till two

years ago, when she had an attack of grippe. She has never recovered perfectly, has lost thirty pounds and has coughed and expectorated frothy sputum. She has been troubled with night-sweats, chilliness in the morning and feverishness later in the day. Her appetite has been poor and her bowels constipated.

On entering the hospital her pulse was 120, weak and soft; her temperature 100° F. The physical signs were as follows: Right lung anteriorly, sibilant breathing and subcrepitant râles, friction sound below and to the left of the nipple, bronchovesicular breathing; posteriorly, right lung, tubular breathing and flatness. The fluid on the right side accumulated very rapidly until there was marked flatness and the respiratory murmur had almost disappeared on that side. The friction of course disappeared with the separation of the pleural surfaces by the fluid. The patient has since gained in weight to 108 pounds at the present time. The fluid has disappeared and respiration has been restored over the base of the lung, but the physical signs have changed at the apex.

On percussion, at the right apex when the lungs are filled with air there is a peculiar note. The air is driven out through the nostrils, giving a nasal quality to the crack-pot sound. On auscultation I hear loud, cavernous breathing, with the same metallic quality when she breathes through the mouth. It is accompanied by râles, which have increased very much since the last examination. At the base of the lung matters have very much improved. The lung is resonant and the breathing fairly good. The temperature chart is significant. The morning temperature is about 97°, the evening temperature 2° higher, with a maximum of 102.5°.

The question was raised as to the advisability of withdrawing the fluid. On account of family history, her mother and sister having died of tuberculosis at about her age, I did not want to run any risk of perforating the lung and allowing the exit of tuberculous matter into the pleura. There were certainly areas of consolidation, and with the tubular breathing heard at some points and absent at others, it seemed that there were adhesions at some places and effusion separating the lung and chest wall at others. There is no better culture medium for tubercle bacilli in the body than the peritoneum, and the pleura is almost as good.

Whether my fears as to the immediate danger of puncture were well grounded or not, the condition has cleared up without operative interference. At the same time, with the past history and the present condition of the lung itself, the outlook is unfavorable.

TUBERCULAR OR SYPHILITIC LARYNGITIS.

This patient is thirty-eight years of age; a Norwegian lumberman; married. His father died at the age of seventy-three, his mother at the age of eighty-two, of unknown causes. He has two brothers living and well. He came to this country twelve years ago. He has been healthy till two years ago, when he took cold and was in bed three days with pains in the ears and throat. Since then he has suffered with sore throat, and last June his throat began to pain him more severely, especially on swallowing. Three weeks ago (about January 1st) he became too weak to continue at work, being unable to swallow enough solid food for proper nourishment. He smokes considerably, but is temperate in the use of alcoholic beverages and denies venereal history. The tongue is coated; the bowels constipated. The urine on admission had a specific gravity of 1020, was dark red, of urinous odor and acid reaction and contained neither albumin nor sugar. His voice has become more and more husky and, finally, his breathing has become obstructed. He has improved somewhat, he says, since he has been in the hospital.

There has been some doubt as to the diagnosis. Several who have made laryngoscopic examinations have diagnosed syphilitic laryngitis, while I have rather held the trouble to be tuberculous, although differing with those more expert in diseases of the throat. It seemed to me that the man had a bad-looking chest, an examination of the lung revealed areas of impaired respiration and dullness, and Dr. Benedict examined some of the sputum and found tubercle bacilli present. Still, we cannot depend entirely on finding tubercle bacilli in a hospital patient's sputum. In two or three cases in which we have been surprised to find them present it has turned

out that some one else had used the patient's sputum cup. If the case is one of syphilis, as Drs. Cott, Rochester and Hinkel have all decided from the appearance of the larynx, I am firmly convinced that it has been accidentally acquired, for the patient seems perfectly straightforward in his denials of infection. We can elicit no history of an eruption nor find the evidence of a primary lesion. His habits of life have not been wanton, and he does not give a single sign of syphilitic disease except in the throat. The epiglottis is inflamed, the false vocal bands are engorged and the cavity is filled in with granular matter, showing that an extensive ulcerative process is going on. The man has improved somewhat on antisyphilitic treatment, but we should expect the alteratives to have a favorable influence on such a grade of inflammation even if not specific. It is possible that we have to deal with a mixed syphilitic and tubercular infection.

The laryngeal breathing is so loud that it is transmittted to the lungs and might mislead one into thinking the lungs more diseased than is the case. Laryngeal breathing is a loud, tubular sound with a high, whistling character. The respiratory sounds are exaggerated on the left side, and in each interscapular region I have marked an area of loud breathing. In the axillary regions the breathing is diminished. On heavy percussion in the left infraclavicular region, while the patient breathes deeply, I can elicit a crackpot sound—that is, I can expel the air through the larynx by the blow of the finger. I do not believe, however, that this sign indicates a cavity in every instance. I find the loud subcrepitant râle which is to be expected in any case in which the lung is breaking down. The tubular quality of respiration is due, I have no doubt, to the laryngeal disease. It is not surprising if this sound can be heard on the back row of seats that it should be transmitted to the lungs. The râles, I am confident, are formed in the air-passages under the stethoscope, yet I would not be willing to book them as positive signs of tubercular disease. It may be that the patient originally had syphilis of the larynx and that tuberculosis developed later. The temperature range is from 98° to 101.5°, which favors the latter diagnosis.

EXERCISE, REST AND FOOD IN THE TREATMENT OF PULMONARY CONSUMPTION.*

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The interesting papers on "Rest Cure in Pulmonary Consumption," by Thomas J. Mays, M.D., appearing in THE MEDICAL AND SURGICAL REPORTER June 17, 1893, and "The Management of the Convalescent Stage of Phthisis," in the October number of the *American Medico-Surgical Bulletin*, are accountable for the following, which embodies partly my experience and partly my theory in the treatment of the same subject. And it is from the exercise side of the subject that I wish to say the most.

It is notable in the treatment of any subject in medicine how great a tendency there is to attempt to generalize or reduce to a system the treatment of certain diseased conditions belonging to it. This is perfectly natural, and is only the result of the desire for that order and system which, when carried out in other branches of science, is productive of the largest results. But the treatment of any diseased condition is so large a subject and has to do with so many uncertain elements that are not thoroughly understood, that the attempt to classify and bring into order is very often more destructive than beneficial.

It is astonishing how many different ways of seeing things there are for different persons, and what opposite results are arrived at by equally intelligent people. Possibly this is the result of the omission

*A portion of this paper appeared in the American Medico-Surgical Bulletin, January, 1894.

of small, apparently trivial factors. Possibly it is sometimes owing to the inherent unconscious vanity of most people to desire to make the object of their research fit their already-formed conclusions. The truth of a paragraph that I saw not long since recurs to me and seems to have a special applicability to the discussion of medical subjects. It was that "the position of a genuine searcher for truth must be one of a sort of agnosticism, and he must be actuated by a constant supersensitiveness for truth."

There are many cases of consumption which are purely pulmonary in which there can be no doubt that a rest-cure might work the happiest results. They are cases in which the bankrupt condition has not generally affected the body. By reforming the corrupt official, the rest of the body being in accord with the physician, we have a restoration to health.

But, unfortunately, we have many cases in which you cannot put your finger on any one part and say, "it is here the trouble is," for the whole body of officials and employees are constitutionally corrupt, and in place of good coin are constantly turning over imperfect and counterfeit material. The patient is not only suffering physiological starvation, but is constantly being poisoned by the very food he takes in to nourish him. This condition might be called one of suboxidation, and is a condition that is not sufficiently considered in treatises on tubercular phthisis. In many cases we have tubercle in almost every tissue of the body, lungs, bowels, kidneys, liver, skin. In feeding these cases we have to take this condition of suboxidation into consideration. We have not only to build up new tissue to supply the waste, but we have to supply the elements necessary to oxidize and carry off the double waste going on as well from the broken-down tissues as from the excess of food which is not "burned up" as it should be in a normal condition. The latter element, of course, can be more or less governed by regulation of the food supply, but whether entirely or not is a very doubtful question, and it is probable that there is always a very variable factor of imperfectly digested food to take into consideration. This is a point that is very much neglected in general practice.

Every one is familiar with the fact that the food we take within us contains the elements of death as well as of life. That which is innocent and life-giving in one case is deadly poisonous in another because of functional or organic incapacity of the vital tissues. There is one food, however, that can, it seems, be taken in almost immeasurable quantities. This is oxygen, and is the element required to relieve the condition of suboxidation.

How, it may be asked, are we going to increase the consumption of oxygen or produce a forced consumption of that element? By exercise in the open air. The law of a living, healthy human animal is action; and any attempt to reduce him to a plant life or vegetative existence is followed by a retrograded condition, physically and mentally. There are many persons to whom a very moderate amount of confinement means degenerative changes and death. This may more especially be the case with persons who have always been in the habit of leading an active life.

How many unfortunate cases have we seen who were rapidly wasting away in the possession of all the luxuries that wealth and friends can give them.

How many others have we seen who, on account of circumstances of poverty, necessity or ambition, have been compelled to keep at their posts and who have worked and suffered half a lifetime before giving up to the destroyer.

It is argued by the advocates of a rest-cure that the vital energies should be conserved toward the building up of new tissues to take the place of the degenerated and diseased tissue. But this is taking it for granted that the emunctories will do all of their work with the patient in a quiescent state. Our experience is that the emunctories are sadly at fault here, and without a discreet amount of exercise are very apt to be deficient. Indeed, it seems essential that in order to build up healthy tissue one must tear down tissue; and the more rapidly, within certain limits, this change of waste and repair goes on, the better. But it is necessary to the success of this theory that the waste and repair should take place in presence of a free supply of oxygen, so that the tissue that may be laid up is stable and of high vitality and the waste that is removed shall be carried off without development of by-products.

This brings us to the kind of exercise

recommended, which should be that which will be productive of mild stimulation of all the tissues of the body without undue fatigue, without over-production of animal heat, and which should take place in an atmosphere containing a free supply of oxygen.

What will give this? Walking or the judicious use of the bicycle, *and nothing else!* There is no form of horseback or carriage exercise that will take the place of these. Most all other kinds of outdoor exercise are too violent, and no kind of indoor exercise is suitable on account of the absence of pure air.

There is another point that is attained by this treatment, which is very important: It stimulates the peripheral circulation and nicely regulates the heat centers, preserving an even temperature—two things which are very much in default in many chronic cases. It is well known that in many cases of constitutional phthisis there is frequently a tendency to irregularities of circulation, with internal congestions and great disturbance of the heat centers. Everything, then, which interferes with the action of those centers, such as quiescent conditions in the open air, especially during damp, cool weather, favors congestion, and every congestion, even though of very short duration, intensifies any local trouble wherever it may be situated in the body. Hence can be seen the ill effects of carriage-riding in any but the warmest weather. It is astonishing, notwithstanding the fact that cool, dry weather is the best for consumptives, how much apparently unfavorable weather can be endured, provided a person is thoroughly protected by suitable dress and mild exercise.

Though I do not pretend to be much of a believer in hypnotism, mind-cures, etc., I must say that I think the will may have much to do in conquering these wasting diseases, especially when coupled with the most enlightened treatment that can be had.

Just here I would like to introduce a very apt sketch to illustrate this power of resolution. In the "Memoirs of Vidocq, Chief of the French Police," a little book which I once picked up, there is a story of a soldier who, being stricken with consumption, lay in his tent paralyzed with fear and hopelessness. In his agony he betakes himself to the tent of his commander and requests a discharge, giving as motive his physical condition. The captain speaks roughly to him, tells him that the only medicine for his trouble is a bullet, and refuses him his discharge. Wandering around in a dazed condition one day during the occurrence of a severe military engagement, he has an opportunity to distinguish himself by hurling away a lighted bomb which was about to explode, thereby saving the lives of a number of his companions. A few days afterward again at the risk of his life he rescues a woman and her child from a burning building, and from that day, by application and personal bravery, was repeatedly promoted until he became general of a division. The narrator prefaces his remarks with a personal description of the man, which represents him not, as one might suppose, lusty and well favored, but looking, as I have seen many a man look who had lived long and well, "a death's-head surmounting a bag of bones!"

It is a question with us, even if it were possible, whether it is well to lay on much flesh in a well-marked case of phthisis. For that which is formed under forced feeding without much exercise is of a vitality lower than in a normal, healthy person.

This is particularly the case in hereditary examples. The result may be that if at any time subsequently, as result of hardship, misfortune or mental overwork, the subject may acquire a return of the disease, on account of the lower vitality of the new-formed tissues they will rapidly waste, using up in their combustion the life-giving oxygen which should be devoted to supplying the vital forces. The result is that we have immediately the condition of suboxidation spoken of above, and the patient, unless skillfully treated, is likely to be drowned in his own excretions.

We believe that the majority of phthisical cases may be saved to long life, if not cured, if we can have the most favorable environment and treatment. The difficulty is that it is almost impossible to regulate the treatment and environments of patients outside of special hospitals. With proper food, times of eating, etc., suitable clothing, attention to all the most minute particulars of sleeping-rooms, heating, bedclothes, living-rooms, bath-rooms, bathing, closets, etc., then with proper

exercise and rest and some interesting, easy, but not too engrossing or exacting pursuit, the lives of consumptives might be made an Eden of perennial joy.

There is one thing that cannot be too much insisted upon. Consumptives ought never to be *impecunious*, but ought either to be the sons or daughters of wealthy parents or ought to inherit or acquire wealth in some manner. For this reason: that for years after an apparent restoration to a fair degree of health the consumptive ought not to be subject to the ordinary exactions and sacrifices of making a living in this busy world. For it is always certain, if they are so subject, that a day may come when a little extra strain or exposure will start them on the down path again and bring back all the original symptoms.

A few remarks might with advantage be added on the subject of feeding in consumptive cases who are pursuing an active outdoor life.

It is interesting to note that imperfect starch digestion is one of the peculiarities in the disease, and this notwithstanding the fact that a certain amount of starch is very necessary to the production of a healthy state of the body.

The proof of the above is evidenced by the natural repugnance which many consumptives have for starchy food, and that when it is ingested in any great quantity the result is almost always either a good deal of diarrhœal trouble or else flatus, and foul gases are expelled by the rectum.

In this connection we submit that these gases, which are generally supposed to be pathological in the sense that they should be opposed by antiseptic medication, are, in our opinion, conservative; that they are by-products which by their generation prevent the formation of more injurious waste products, and by their expulsion prevent diarrhœa and intestinal irritation; that when formed the patient should be encouraged in the habit of getting rid of them per anum.

One of the most promising signs, then, of convalescence in consumptive cases is the ability to digest starchy food. The long train of symptoms, such as cold extremities, irregular heat production and the tendency to local congestive conditions, is at once alleviated and a sense of well-being never before experienced is obtained.

An individual may exist for a long time on a course of meats and nitrogenous foods, but that treatment is only preliminary to the addition of starch food to the diet, which must take place to complete the cure. This is sometimes attempted by the substitution of alcohol, one of the congeners of starch, but it is a feeble and often dangerous staff and as often breaks the patient or fails utterly. With alcohol it is often a question of dying of consumption or of delirium tremens, and the patient must choose between the two.

Oxygen and outdoor exercise are the necessary adjuncts to starch digestion, and it is interesting to find, with the use of these, what an amount of starchy food can finally come to be disposed of by the digestive tract. One also will find almost invariably that whenever circumstances render outdoor exercise temporarily inconvenient or impossible, the starchy food must be immediately cut down or one will have as a result increased flatus or diarrhœa.

Another point of interest, too, is the peculiar idiosyncrasy of some patients as to the variety of starchy food which is taken, the manner of cooking, etc. As a general rule white potatoes, baked and served hot and fresh from the oven, are better assimilated than any other form of starch unless it be wheat bread. The same holds good for sweet potatoes, and one great desideratum is that they should always be dry—not water-soaked. Some patients can eat chestnuts, boiled or roasted, when all other starches are repugnant and indigestible, and absurd as it may seem, I have seen one patient who in the early chestnut season could devour quantities of fresh raw chestnuts almost *ad libitum*, when at the same time his lower intestinal tract was in such an ulcerated condition that specks of blood were passed with the stools.

For Incontinence of Urine.

Sodii benzoati	grs. xv
Sodii salicylatis	grs. xvij
Ext. belladonnæ	grs. xxx
Aq. cinnamomi, q. s. ad	fl ℥ iv

A teaspoonful to be taken four or five times a day.

A Good Evaporating Lotion.

Ammonii chloridi	℥ j
Sp. rectificati	℥ ij
Sp. ætheris	℥ j
Acid. acetic	℥ jss
Aq. destill. q. s. ad	℥ xij

Solve et M. To be applied on lint in severe sprains etc.

COMMUNICATIONS.

ACUTE INFLAMMATION OF THE MIDDLE EAR, TERMINATING IN PURULENT PERIPHLEBITIS OF THE LATERAL SINUS AND THROMBOSIS—OPERATION—RECOVERY.*

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The patient, a man of strong physique, about fifty-four years of age, consulted me on January 29, 1894, for the relief of pain in the left ear. For several days previously he had been suffering from a "cold in the head," and on the preceding day he had taken a sleigh-ride; but he had not been conscious of having experienced at the time any chilling of the body. The pain had first been felt early in the morning of the day following that on which he took the sleigh-ride—that is, only a few hours before he came to my office. I examined the ear and found the membrana tympani, especially the upper half, markedly hyperæmic. There was also a decidedly congested and swollen condition of the naso-pharyngeal mucous membrane. No secretion had as yet accumulated in the drum cavity. An application of a fifteen-grain silver nitrate solution was made to the vault of the pharynx, and hot poulticing and rest in bed were prescribed.

On the following day I visited the patient at his home and found that he had experienced very little if any relief from the pain in the ear. The appearance of the drum membrane showed that the drum cavity was already full of secretion, and that the inflammation was increasing in violence despite the hot and moist applications. I accordingly made a long, crescent shaped incision in the posterior half of the membrane, affording a free outlet to the pent-up blood-stained serum, and I ordered a continuance of the poulticing and the free use of the hot-water douche.

The paracentesis afforded a measurable degree of relief, but only for a short time. On February 3d, 5th, 7th and 10th it was found necessary, on account of the rapidity with which the opening healed and on account of the return of pain whenever the opening ceased to be of fairly large size, to repeat the paracentesis. Soon after the first operation the discharge became purulent in character and quite abundant. On February 11th or 12th there was a slight tenderness on pressure behind the ear, and accordingly three leeches were applied to this region.

On the 14th, as the leeches had afforded only temporary relief, a Wilde's incision was made; and on the following day a seton was established at this point. A very broad, curved needle (made specially for the purpose), with cutting edges and armed with six or eight threads of coarse silk, was introduced at the bottom of the Wilde's incision and pushed out backward through the skin at a spot about one inch distant from the point where it had entered.

The discharge from this artificial sinus, kept in an irritated condition by the presence of the mass of silk, failed to exert any marked impression upon the amount of discharge from the middle ear or upon the subjective pain experienced by the patient. After the seton had been in place for four or five days, the patient had a sharp chill which lasted for a few minutes, but was not followed by any appreciable rise in temperature. (The patient's body temperature was tested nearly every day and sometimes twice a day, but it was always found to be either normal or at most two-tenths or three-tenths of a degree above the normal.) At the time I felt confident that this chill was due to the imprisonment of pus in the seton channel; for when I examined the parts one or two hours afterward I found both orifices practically closed by the drying up and caking of the discharge

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at these points, and even in the light of later developments I am still disposed to look upon this as the correct explanation.

On February 21st Dr. Herman Knapp saw the patient with me in consultation. The pain had not been materially diminished by any of the measures which I had instituted—repeated paracenteses, hot poulticing and frequent douching of the external auditory canal, the application of leeches to the mastoid region, a Wilde's incision followed by the introduction of a seton, an occasional dose of calomel, the daily employment of the Carlsbad Sprudel salts, etc.—and it was becoming more distinctly hemicranial in character. I therefore felt that the time had arrived when it would be wise to establish a free outlet from the mastoid antrum through the mass of bone lying outside of it. On this particular day, however, the patient felt decidedly better than he had felt for several days previously, and we accordingly agreed to postpone, at least for the moment, the consideration of the question of operative interference. It was decided, however, to remove the seton, for it was apparently accomplishing no good purpose, yet at the same time it was preventing us from estimating correctly, by aid of such signs as tenderness on pressure, swelling, etc., of the skin, how the underlying mastoid inflammation was behaving. Dr. Knapp's examination of the patient's left eye with the ophthalmoscope gave a negative result.

On the following day (February 22d) the patient once more complained of decided pain in and around the ear; and as the opening in the drum membrane had by this time again become insufficiently large for free drainage of the inflamed middle ear, I excised a small portion of it by first making a flap (with its base below) and then snaring off its upper free extremity. The incision which marked the posterior limit of this flap approached very closely to the curved line corresponding to the insertion of the membrana tympani in the sulcus tympanicus, and as the knife passed through the thickened tissues of the membrane there was a sudden escape of thick creamy pus quite different from the muco-purulent secretion escaping from the old opening in the membrane. By further manipulations I succeeded in dislodging through the opening a core-like mass as large as a No. 3 shot. The introduction of a bent middle-ear probe revealed the fact that the posterior wall of the cavity from which this creamy pus and this core-like mass of broken-down tissue had been evacuated was bone denuded of its covering of mucous membrane. In other words, I had accidentally evacuated a separate collection of pus located at the posterior end of the tympanic cavity between the surface of the bone and the mucous membrane (periosteum), just beneath the entrance to the mastoid antrum. In the natural state the bone at this point is somewhat rough and irregular. From the sense of touch alone, therefore, I could draw no safe conclusion as to its condition. There could be no doubt, however, about its being in a state of inflammation.

The relief afforded by this operation was but very little, if at all, greater than that afforded by my previous simple paracenteses.

On March 1st Dr. Knapp again saw the patient with me, and it was decided to cut down to the antrum. The operation was performed in the usual manner. No well-marked pneumatic cells were encountered until I had chiseled away the bone to a depth of nearly half an inch. These cells were all found to be filled with granulation tissue, and at all points the bone substance was found to be in a condition of marked hyperæmia. Close to the antrum, however, it was found to be of a bluish-black color and softened. No pus was encountered until the antrum was reached, and then only a barely recognizable amount. Every portion of the wound, the antrum and the tympanic cavity proper was thoroughly irrigated with a 1:4,000 bichloride solution—the fluid escaping freely from the middle ear into the external auditory canal. No sutures were employed, and the wound was dressed with iodoform gauze.

From March 1st to the 16th nothing worthy of special note occurred. The operation caused the pain to almost disappear at first, but gradually it returned and steadily increased up to the date last mentioned. Then, in the belief that there might perhaps be some obstruction to the free escape of pus, I reopened the wound freely and with a Volkmann's spoon cleared away all the granulation tissue which had formed in the antrum and in the excavation made in the bone out-

side of the antrum. This procedure, however, afforded only temporary relief. From time to time during the following three weeks I tried different kinds of drainage-tubes and contrivances, in the hope of securing complete freedom from pressure upon the mass of escaping pus; for whenever I succeeded in accomplishing this, even for a short time, I observed that the patient experienced comparative freedom from pain. But the discharge was abundant and granulation tissue repeatedly blocked the openings in the drainage-tube, thus reëstablishing the condition of pressure which was so undesirable. It was during this period that the patient had the second and last chill that he experienced during the entire illness. The drainage-tube at the time was completely blocked, and there was an appreciable increase in tension of the skin surrounding the outlet. I am unable to state whether this second chill was or was not associated with a rise in the body temperature.

Toward the end of the period now under consideration there was a noticeable increase in the redness and swelling of the integuments covering the lower and posterior part of the mastoid process, and the lateral movements of the head caused some distress. But there was no tenderness along the side of the neck, and the tenderness over the tip and posterior aspect of the mastoid bone was but little, if at all, greater than one usually finds in the vicinity of a still open mastoid wound. The discharge, however, was more copious than it should be from such a wound, and I made up my mind that there must be a center of active osteitis in the lower part of the mastoid bone. Accordingly, on April 9th the patient was put under the influence of chloroform, and a considerable portion of the lower part of the mastoid process was removed by chiseling. No center of pus was found, but everywhere the bone appeared to be in a markedly hyperæmic state.

During the week following this operation the patient's condition steadily grew worse in the following respects: The movements of the head became more painful, there began to be an appreciable degree of tenderness below the mastoid process, and the swelling, tenderness and pain in the region lying between the mastoid bone and the occiput increased to an appreciable degree. Then, besides, he found that he could read for only a short time, on account of the pain which it produced in the left eye. On the other hand, the body temperature did not rise above 99.4° F., the pulse-rate did not exceed 82 beats to the minute, and the patient continued to take his food with relish. The symptoms just enumerated, however, satisfied me that the inflammation was extending in a backward and perhaps inward direction, and that a bolder search for some center of pus should be made in these directions. This conclusion was still further strengthened by my finding, on April 13th, that pus from some new source, situated below the artificial opening in the bone, was burrowing down the side of the neck in front of the sterno-cleido-mastoid muscle.

On April 14th the patient was brought under the influence of chloroform, and I proceeded to chisel away the outer and posterior surface of the mastoid process. At all points the bone was found to be markedly hyperæmic, but no pus or appreciable softening of the bone substance was found until the immediate wall of the channel for the lateral sinus (sigmoid groove) was reached. At this point, situated at a depth of fully half an inch from the outer surface of the mastoid process, the bone seemed to have undergone a certain degree of softening, and odorless, creamy pus welled up from this cavity as soon as the chisel cut through the surrounding softened wall of bone. By means partly of the chisel and partly of a medium-sized Volkmann's spoon I enlarged the opening until it measurep about three-eighths of an inch in diameter. The outer wall of the exposed vein was found to be granulating, but not softened, so far as I could judge by pressure with the probe. The absence of all tension warranted the belief that the vein was thrombosed at this point. So far as I could judge, the pus surrounding the vein came partly from some point higher up and partly from below. I fully expected to discover roughened bone or the opening of a fistula at some point along the anterior aspect of the sigmoid groove, but my probe revealed no such point.

The situation of affairs, as brought to light more fully by this operation, made me feel that I could no longer do full

justice to the case; that in the further search for centers of pus regions would have to be laid bare with which I did not feel myself to be sufficiently familiar; and that, therefore, a general surgeon should be summoned. Accordingly Dr. Frederick Lange was invited to take charge. The patient was once more anæsthetized (April 16th), and Dr. Lange proceeded first to expose thoroughly the downward track of the pus along the jugular vein. Then he removed, by chiseling and by the use of the rongeur forceps, all that remained of the mastoid process; thus laying bare the jugular vein from its situation in the sigmoid groove down to a point perhaps one inch below the level of the tip of the mastoid process. All of the jugular vein thus exposed to view was evidently in a thrombosed condition, as its walls showed no changes in tension when firm pressure was made upon the side of the neck lower down or when the patient coughed. Dr. Lange also removed, in an upward direction, enough of the squamous portion of the temporal bone, where it forms the outer wall of the vertical part of the lateral sinus, to give him free access to any collection of pus that might exist in this part of the cranial cavity. No such collection, however, was found. Then, finally, he worked his way cautiously downward and inward until he had exposed the styloid process, the trunk of the facial nerve as it emerges from the stylo-mastoid foramen, and the region beneath the foramen lacerum. The probe was passed through this opening into the cranial cavity, but no collection of pus was found. All this work, I scarcely need to state, was performed under constant aseptic and antiseptic precautions. After the operation was completed a drainage-tube was laid in the wound, with its inner end resting against the deepest part of the excavation, and iodoform gauze was packed around it. A few turns of a bichloride gauze bandage served to keep the dressings well in place.

On the day following the operation the temperature rose to 100.4° F., and then gradually fell, during the course of the following week, to normal. The pain in the left eye brought on by reading gradually disappeared, and with it the slight alterations observed by Dr. Knapp, shortly after the operation, in the fundus of the eye. At the end of three weeks the patient was allowed to leave his bed, and at the present time of writing (May 27th) the wound has progressed so far toward healing that its complete cicatrization may be looked for in the course of the next two or three weeks. No drawbacks of any kind have occurred during this period.

The discharge from the middle ear, by way of the external auditory canal, ceased on the third or fourth day after the first operation upon the mastoid process; but on two or three subsequent occasions it returned for brief periods of time. It was not clear to what these slight relapses were due; but it is probable that some interference with the drainage from the antrum, by way of the outside wound, caused sufficient back pressure to reopen the perforation in the membrana tympani.

Throughout almost the entire attack the hearing in the affected ear remained fairly good, and soon after the last operation it returned to a practically normal condition.

Comments.—The most striking feature in this case, as it seems to me, is to be found in the fact that the disease began, almost at the very start, as an osteitis. There was, it is true, the usual antecedent naso-pharyngeal inflammation, and this inflammation spread in the usual manner to the mucous membrane of the middle ear. But the course which it pursued after it had reached the latter cavity was certainly very different from that which we are accustomed to see in the vast majority of cases. I have often said to myself, and have perhaps expressed the view to others, that if an acute inflammation of the middle ear (not associated with diphtheria, measles, scarlet fever, smallpox or typhoid fever) could be subjected to suitable treatment within the first twenty-four hours, it would never progress so far as to seriously involve the neighboring mastoid process. In the present instance the patient presented himself within a few hours of the time when he felt the first twinges of pain in the ear. Simple antiphlogistic measures were employed immediately, and then, as soon as any secretion had accumulated in the drum cavity—that is, at the end of twenty-four hours—a very free opening was made in the drum membrane in order that intratympanic pressure—the factor which is believed to play perhaps the most impor-

tant part in the aggravation and further spread of an acute middle-ear inflammation—might be quickly done away with. But it is evident that in the present instance only a very transient beneficial effect was produced by this and the succeeding efforts to reduce intra-tympanic pressure to a minimum, or by the other antiphlogistic measures employed. The most plausible explanation of this lack of success in arresting the inflammation is to be found, I believe, in the assumption—which is strengthened by the facts revealed in the latter course of the disease—that already at this early stage the inflammation of the adjacent bone, particularly that portion which lies near the posterior end of the tympanum and around the antrum, had gathered considerable headway. It is not unlikely, furthermore, that there may have been certain anatomical peculiarities which rendered this mastoid bone more than ordinarily liable to participate in any inflammation that might develop in the contiguous tympanic mucous membrane. As favoring this view, I may mention the facts that seventeen years ago I operated upon this same patient's right mastoid process, and that one of the most troublesome features in the case was an obstinate tendency to the formation of firm granulation tissue around a small spot of bone caries situated at the posterior end of the tympanum, just beneath the entrance to the antrum.

The absence of fever and of chills (the two mentioned in the history of the case were, I believe, due to special conditions) may also be noted as something unusual. The absence of these symptoms probably indicated that up to the time of my last operation the inflammation had not gone much beyond the stage of periphlebitis of the lateral sinus, and that whatever actual phlebitis existed must have been of a mild, non-infective character, simply active enough to create a thrombus.

The present case and others of a more or less similar nature that are to be found recorded in medical literature justify the establishment of a rule something like the following: The persistence of deep-seated pain behind the mastoid process after the antrum has been opened into and thoroughly drained, is sufficient warrant for making an opening into the sigmoid groove for the lateral sinus; and it is not advisable to wait until the patient has chills, or until the body temperature rises to an appreciable degree, before resorting to operative interference in this direction. If we wait for the corroborative evidence furnished by the symptoms last named, we shall lose lives that might otherwise be saved.

CHRONIC TYMPANIC VERTIGO—ITS RELIEF BY SURGICAL LIBERATION OF THE STAPES.*

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Inspection of the mechanism of the conductors of sound reveals an arrangement peculiarly well adapted to carry the stapes inward toward the labyrinth. Such inward excursion of the ossicles is in fact made in every normal ear with every wave of sound falling on it. That a limit to this inward motion of the stapes is desirable is shown by the presence of the stapedius muscle, the antagonist of the tensor tympani. The latter muscle draws the malleus inward and aids it to force the incus and mediately the stapes inward. If abnormal retraction in the conductors ensues from any cause, the stapes, being the weakest of the conductors of sound, is forced unduly into the oval window. Excessive pressure is thus exercised upon the labyrinth fluid, the motor filaments of the auditory nerve are irritated and vertigo is the result. If such morbid retraction in the conductors of sound is of frequent and prolonged occurrence, as in chronic catarrh of the middle ear, chronic vertigo may be added to the tinnitus and deafness already present.

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For such phenomena of disturbed equilibration in chronic catarrh of the middle ear (sclerosis), I have suggested the name of chronic tympanic vertigo. The term Ménière's has been applied usually to this affection. But this is a misnomer, for Ménière's disease means a disease of the labyrinth and not a diseaseof the middle ear.

Chronic tympanic vertigo usually occurs in an ear which has been for some time previous the seat of tinnitus and deafness from a chronic catarrhal process in the drum cavity. The nares and naso-pharynx usually show by this time no disease, though the catarrhal process may have started there. The membrana tympani will be found markedly and continuously retracted, and the stapes therefore unduly pressed into the oval window and held there by the overpowering weight and force of the malleus and incus.

A characteristic feature of chronic tympanic vertigo is its paroxysmal occurrence. This is due to the fact that the labyrinth tolerates to some extent the chronic pressure of the stapes; but a change in the circulation in the middle ear, in varying conditions of health of the patient, brings about increased retraction in the already retracted ossicles, undue inward pressure of the stapes ensues, and a paroxysm of vertigo of longer or shorter duration sets in. The same phenomena appear when the quantity of lymph in the labyrinth is increased in a general afflux of lymph to the head, in a case where the labyrinth space is compromised by a chronically impacted stapes. The paroxysmal nature of chronic tympanic vertigo distinguishes it from the vertigo from a tumor in or near the auditory nerve, which is always constant, though it may be slight. Retention of consciousness, even in the worst cases, where the patients reel and fall, serves to distinguish tympanic vertigo from epilepsy and apoplexy—though it is unfortunately too often mistaken for these maladies.

The only way to relieve chronic tympanic vertigo is to liberate the stapes. This is best accomplished by elimination of the incus from the retracted chain of ossicles. Thus the power of the retracted lever is overcome, and the stapedius, relieved of its forceful antagonist, the tensor tympani, lends assistance in drawing the stapes from the oval window, and the morbidly impacted bonelet is liberated.

That morbid retraction of the conductors of sound and impaction of the stapes are the cause of chronic tympanic vertigo, and that this disease is relievable by removal of the incus, is amply demonstrated by the following cases, which are the latest in a series of 20 similar ones.

Case XVII (in a series of 20).—Mrs. K, aged forty-six, of Maryland, consulted me December, 1893. The patient had an attack of acute catarrh in the head over three years before the date of her first visit to me. Soon after the catarrh of the nares and naso-pharynx, tinnitus and dullness of hearing were observed in the left ear, and fifteen months later vertigo was felt, and attributed by the patient to the discomfort in her ear. She felt more or less vertigo all the time, became depressed in spirits and suffered from more frequent and severe paroxysms of tympanic vertigo. These attacks numbered at least two or three a month, and made the patient unwilling to leave the house alone. Finally, after much treatment for nervous prostration, but none for her ear, the seat of the disease, the case was taken to Dr. S. Weir Mitchell, who, recognizing the true nature of the disease, referred the sufferer to me.

Otoscopic examination revealed a thickened membrana on the left side; incus not visible through the membrane; hearing much reduced; nares normal. Chronic tympanic vertigo, due to retraction of the ossicles and undue impaction of the stapes in the oval window, was diagnosticated, and the removal of the incus advised in order to liberate the stapes.

Consequently, though the patient was in a very nervous condition, she was etherized January 23, 1894, and the incus removed after myringotomy in the upper posterior quadrant of the membrana.

January 24th. The patient can walk decidedly better and is very cheerful. Hearing unimproved and tinnitus unchanged. The patient goes home to-day.

Unfortunately this patient took cold on her way home and seemed worse in every way for some time. By March 15th, however, when she came to see me, I found that the tinnitus was much less, there had been no paroxysms of intense vertigo for some weeks, and, in fact, the vertiginous tendency seemed permanently banished. The patient looked five years younger and

was very active on her feet, being no longer in fear of vertigo and falling. Thus the object of the operation had been attained.

Case XVIII.—Mr. W. P., of Philadelphia, aged thirty-four, a clerk, consulted me January 29, 1894, for tinnitus in the right ear, more or less paroxysmal in nature and culminating at times in vertigo.

Otoscopic examination of the right membrana revealed that the membrane was perforated below the manubrium, and through the heart-shaped opening the mucous membrane beyond gave evidence of having been the seat of chronic purulency. The rest of the membrana was thick and rigid, seemingly attached to the incus or its remnant and lying against and pushing inward the stapes; which bone, however, was not visible.

The deafness in this ear was profound. For two months previous the tinnitus had been increasing in the right ear and the patient had experienced an unaccountable tendency to vertigo, which he supposed to be due to stomachic derangement. The exacerbations of vertigo became more frequent and more intense until the patient was afraid to walk in the street alone, and at last in February he ceased to go to his business on account of disability induced by the tinnitus and tympanic vertigo.

It now became manifest that these disagreeable symptoms in the right ear were due to impaction of the stapes in the oval window. It was therefore proposed to liberate the stapes by cutting into the thickened upper posterior quadrant of the membrana tympani and then removing the incus. The patient was etherized March 2, 1894, and a wide incision made in the thick membrana. A piece of the long shaft of the incus (the only vestige of this bonelet) was found imbedded in the thickened membrana and removed. This exposed and liberated the stapes, which was found to be very movable. Owing to the upward shrinking of the membrana, as I have observed in other cases of loss of the incus from chronic suppuration, the stapes appeared relatively very low, nearly on a line with the lower end of the manubrium. The stapes is still plainly visible and readily movable. After the operation the vertiginous tendency diminished. In a week the patient was able to walk alone in the street, and he returned to business. The tinnitus grew less, but not as rapidly as the vertigo. The hearing was not improved.

In 7 other cases of tympanotomy and removal of the incus I have found at the time of the operation mobility of the stapes, notwithstanding the usual symptoms of chronic catarrh of the middle ear. Tinnitus and vertigo have been relieved in all of these, but the deafness has remained unchanged, notwithstanding the persistent mobility of the stirrup. This I believe to be due to the fact that in these cases the proximal nerve structures in the percipient organ—those nearest to the vascular structures of the middle ear and most readily affected by the catarrhal disease in the tympanum—are atrophied, while the distal nerve-tissues in the semicircular canals—those most remote from the chronic vascular changes in the drum cavity—retain their functions and are impressed by impaction of the stapes.

Case XIX.—Miss H. O., of New York, forty-seven years of age, had suffered from chronic catarrhal deafness and tinnitus for several years. Finally chronic tympanic vertigo had been developed. Otoscopic examination March 14, 1894, revealed a greatly retracted and thickened membrana tympani; incus not visible through the membrane; no hearing on this side. March 16th the patient was etherized and myringotomy in the upper posterior quadrant was performed. The incus-stapes connection could not be seen. The incus, however, was carefully disarticulated from the stapes by means or an incus hook-knife and its long shaft drawn into view. The incus was adherent in the attic, and when traction was made to remove the bone the long descending shaft broke off. The ear was then slightly stopped with boric-acid cotton. The patient went home in four days. No reaction occurred in the ear.

May 10, 1894. The patient called to see me and reported much less tinnitus and a greatly diminished tendency to vertigo.

Case XX.—Mrs. C., of Philadelphia, aged forty-seven, consulted me regarding aural vertigo April 2, 1894. The patient stated that she had suffered from chronic catarrhal deafness and tinnitus in both ears for several years. Within four months the tinnitus in the right ear had greatly increased and was so intense at times as to cause dizziness and faintness.

Otoscopic examination revealed a thickened membrana, retracted and forming a very obtuse angle with the posterior wall of the auditory canal. The incus could not be seen through the membrana. Chronic tympanic vertigo from undue retraction and impaction of the stapes was diagnosticated, and the patient was advised to submit to removal of the incus, for which operation she had been, indeed, sent to me. Therefore on April 17, 1894, the patient was etherized and the incus, which was placed high in the attic, was removed with difficulty, because the manipulations in such a case must be excessively delicate and very slow for the sake of caution and gentleness.

The patient felt no relief of any kind for ten days; then the tinnitus diminished and there was much less tendency to vertigo.

The hearing in the left ear had by this time improved considerably; tuning-fork $\frac{2}{12}$, against nothing before the operation. She hears isolated words, too, much better—six inches before the operation; one to two feet now. The tongue is numb on top from irritation of the chorda tympani.

April 30th. Tinnitus very slight and no tendency to dizziness or vertigo. Hears conversation much better in the right ear.

May 7th. The patient continues free from vertigo, notwithstanding a severe cold. Perforation in the membrana has been closed a month.

TRANSLATIONS.

CATHETERISM OF ARTERIES.*

Severeanu, of Bucharest, Roumania (*Le Progrès Médicale*, August 11, 1894), remarks that it seems paradoxical that any one should find it necessary to introduce a sound into the lumen of an artery for any purpose whatever. Every one knows the frequency of gangrene due to arterial embolism which by obstructing the artery arrests the course of the blood and causes the death by default of nutrition of the parts supplied by this vessel. It is thus that are produced septic gangrenes in typhoid fever and petechial typhus, some of the gangrenes of old people and the gangrene of certain people (Turks) who have the habit of maintaining their limbs in flexion for a long time. In these different cases the embolus is due either to atheroma in old people, to a clot which separates from the heart (endocarditis), to a coagulation of the fibrin of the blood by germs or toxines not yet well defined (typhus, typhoid fever, pneumonia), or, finally, it may be produced by a vicious attitude of the members prolonged for a considerable time and frequently repeated. The clot formed, either in the heart or higher, is swept on by the current of blood until it arrives at a strait where the caliber of the artery is narrower than the volume of the clot, when it stops and plays the *rôle* of a cork. The terminal segment of the affected member is exposed to death if the lumen of the vessel is completely obstructed or if the important collateral branches do not reestablish the course of the blood. Generally the embolus is arrested at a point of arterial bifurcation. Thus it is most frequently observed at the level of the elbow-joint, where the humeral artery divides into two branches, the ulnar and radial, and more often still in the popliteal space, where the femoral artery divides into the anterior tibial and tibio-peroneal trunks; hence the frequency of gangrene of the hand and forearm and of the foot and leg. The greatest number of gangrenes observed by Severeanu have been in the foot. Once only has he observed it in the hand and forearm, and this in a woman with heart disease; in this case he amputated the forearm in its upper third. In the case of gangrene of the foot, in order to insure a good result he has always sacrificed a long segment of the member, carrying his incision up to the point where he could detect the pulsations

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of the artery. In cases where he has not followed this rule he has had the mortification of seeing the flaps become gangrenous, necessitating a secondary amputation or a prolonged process of cicatrization. This has suggested to him the idea of opening by a sound the branches of bifurcation of the popliteal artery, which are found not to pulsate at the level of the third adductors. He employed this process for the first time upon a man of fifty or sixty years, upon whom he had operated for gangrene of the foot consecutive to a cardiac embolus. The artery pulsated only at a high level; the gangrene had invaded the leg and did not manifest a tendency to limit itself. Amputation being positively indicated, in order to have the best chances of success he determined to practice amputation of the leg at the point of election. During the entire operation there was very little hemorrhage, rather capillary than arterial. Rubber sounds (Nos. 1, 2, 3 of the Charrière caliber) were prepared in advance, rendered aseptic by means of alcohol and carbolic acid, and introduced throughout their length into the lumen of the arteries, and on being pushed in and out the blood commenced to flow by the side of the sound. Having withdrawn the sound, the blood current carried out several cylindric clots having the shape and caliber of the artery, and the current of the blood was reëstablished. The arteries being ligated, the capillary hemorrhage became more abundant and the tissues assumed a more lively color. Following this maneuver the flaps did not become gangrenous, and reunion by the first intention was secured. Since then he has in every instance in which he discovered obliterated arteries practiced catheterism of the vessels, and has always congratulated himself upon the result. Usually the sound enters completely into the lumen of the artery, but in some cases this is impossible on account of adhesions between the clot and arterial walls; the flaps will then partially or completely mortify.

RECENT GERMAN SURGERY OF GALL-STONES.*

Dr. H. Kehr, of Halberstadt (quoted in "Schmidt's Jahrbücher von Gesammten Medicin"), out of 77 cœliotomies for gall-stones, found the calculus more or less firmly fixed in the cystic duct in 26 cases. As the accepted process for their removal failed in 7 cases, he resolved upon a new (or at least unreported) procedure, namely, the direct excision of the stone from the cystic duct, with immediate suture of the wound in the duct. With this method he has had the best results. Formerly he employed the suture of the gall-bladder in the abdominal wound and waited for the pressure of bile from behind in conjunction with the diminishing swelling of the mucous membrane to force out the calculus. Now he resolves upon an immediate cystico-lithectomy if he is convinced that the stone will not be spontaneously discharged, if he feels that it is too large to pass through the contracted cystic duct, if the condition of the patient allows further operation, if the cystic duct can be freely exposed so as to render its accurate suture possible, if an immediate evacuation of the cystic duct is necessary for drainage of the biliary system.

Dr. Kehr reports a series of 68 operative attacks on biliary calculi, in addition to 25 previously reported. The cases are grouped as follows:

1. Cholecystostomy, 31; with 1 death from suppurative cholangitis antedating the operation.
2. Choledochotomy, 6; with 1 death from peritonitis due to perforation of the transverse colon, the suture of the duct having held.
3. Cœliotomy and loosening of adhesions about the ductus choledochus, 1.
4. Cystecotomy, 6.
5. Cholecystectomy, 5.
6. Cholecystendysis, 2; with 1 death from pneumonia, the suture of the gall-bladder being firm and there being no peritonitis.
7. Cœliotomy on account of mucous fistula, 2.
8. Exploratory cœliotomy, 3 (gastric carcinoma, 2; pancreatic carcinoma, 1).

*Translated by Dr. A. L. Benedict, Lecturer on Digestive Diseases, Dental Department University of Buffalo, for THE MEDICAL AND SURGICAL REPORTER.

9. Closure of biliary fistulæ, 4.

10. Opening of biliary abscesses in the abdominal wall, 2.

11. Reopening of closed biliary fistulæ, 6.

No deaths occurred except as noted. Of the 3 fatal cases only 1 was directly due to operation.

Kehr has arrived at the following conclusions:

1. Too few operations are performed for biliary calculi; early operation is important.

2. Many patients with gall-stones belong not to Carlsbad, but to the surgical clinic.

3. The public must be informed as to the danger of biliary lithiasis, and the physician must not delay a necessary operation.

4. The course of the sickness and the intensity of the symptoms often determine the necessity of an operation.

5. The urgency may be great, although icterus, enlargement of the liver and tumor of the gall-bladder are absent. The pains, too, need not be typical of hepatic colic.

6. With chronic stomach trouble, for instance, gastric dilatation, especially with so-called cramps of the stomach, the possibility of gall-stones and of hernia in the linea alba must be borne in mind. Many patients are treated for gastric ulcer when they have calculi.

7. Riedel's tongue-like projection is presented in many cases of dropsy of the gall-bladder. Not seldom there is a confusion with a floating kidney of the right side.

8. Biliary colic is often a consequence of an inflammation of the gall-bladder. The accompanying icterus depends on the swelling of the mucous membrane of the biliary passages.

9. Adhesions, particularly between the gall-bladder and the pylorus, occasion attacks similar to colic, even when the stone has long ago been discharged.

10. For the removal of stones from the gall-bladder, cholecystostomy is useful; if the operation is properly performed no fistula results.

11. Adhesions must be broken up so far as possible.

12. The ideal method, with its modifications, must be rejected.

13. Total extirpation is to be thought of only when there is serious involvement of the walls of the gall-bladder, as in carcinoma, ulceration, etc. It is not indicated by a stone lodged in the bladder. In the case of a small, shrunken organ, Riedel's or Lauenstein's procedure is not available and then cystectomy is indicated.

14. Calculi of the choledochus are to be removed by incision of the duct, as previously stated.

15. Calculi of the cystic duct must, under certain conditions, be removed by direct incision.

16. Operation is often less dangerous than medicinal treatment.

17. A return has never been seen by the author.

18. Operations for gall-stones must not be performed except in surgical institutes.

19. They should be undertaken only by one experienced in abdominal work.

Chloroform in Lead Colic.

Dr. F. MacFarlan, of New York City (*American Therapeutist*), remarks that he has had great success in the treatment of lead colic by the internal administration of chloroform. He gives ten drops every half-hour if required. The pain is speedily relieved by the drug. The other features of the treatment go on in the usual way, such as the use of potassium iodide and laxatives. The chloroform is decidedly more effective in relieving the pain than the morphia, as a trial of the two remedies will abundantly prove. The speedier relief also favors a quicker and more satisfactory recovery.

Relation of Tuberculin to the Blood Cells.

As the result of recent experiments, Dr. Maurel finds that tuberculin, in the doses in which it is already employed therapeutically, has no sensible effect upon either white or red blood cells. His experiments also show that human leucocytes are able to resist successfully the bacillus tuberculosis, and that it is only necessary to attenuate the bacillus to a slight degree to enable the leucocytes to destroy the microbe. The experimenter suggests that it is only necessary to discover some agent capable of doing this to cure one of the most dreadful maladies with which the human race is afflicted.—*N. O. Med. and Surg. Jour.*

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SATURDAY, FEBRUARY 2, 1895.

EDITORIAL.

THE GENESIS OF SERUM THERAPY.

Although of necessity brief and summary in character, a review of the origin and development of the treatment and prevention of disease by establishing artificial immunity will be useful, not only because of the intense interest aroused by the present investigations in the so-called anti-toxin treatment of diphtheria, but because the subject affords an excellent illustration of the persistent efforts made to raise medicine to the level of an exact science.

In the history of certain infectious eruptive fevers — small-pox, scarlatina, measles, etc.—three peculiarities have been constantly observed (conditions of exposure to infection, etc., being equal): (1) a limited number of individuals are proof against infection, *i.e.*, are naturally immune owing to some unknown personal quality; (2) a limited number of individuals cannot acquire immunity even by repeated attacks of the disease; and (3) the vast majority of individuals, readily susceptible upon exposure to infection, secure permanent immunity from repeated attacks of the disease by surviving a first attack, *i.e.*, are artificially immune.

During the last quarter of the eighteenth century Jenner, perfectly familiar with these facts, while investigating small-pox observed that those whose occupation brought them in contact with cattle were liable to acquire an analogous disease (cow-pox), which ran a very mild course in the human subject and which protected against the dreaded small-pox as thoroughly as did an initial attack of that disease itself. The results deduced from Jenner's observations have been one of the greatest blessings to humanity. He demonstrated the practicability of attenuating or modifying the small-pox virus by passing it through lower animal economy, eliminating its deadlier characteristics and returning for use in the human economy what it might contain of the beneficent to afford protection against

the disease which generated it. However, he could offer no scientific explanation for the phenomena produced, nor was a satisfactory theory advanced for three-quarters of a century.

Meanwhile the discovery of microbic agency in the process of fermentation had been made, whence have sprung the alluring theories of germs and their relations to disease.

Twenty-five years ago Pasteur discovered that the bacilli of chicken-cholera when exposed to the air for considerable time lost somewhat of their virulence and did not prove so fatal in effect as when fresh. Moreover, that chickens when inoculated with such modified virus were protected against the more virulent forms of the disease. Another discovery credited to Pasteur is that the microbes of a disease which belongs exclusively to a certain class of animals, although by no means destroyed, can be very much modified and the virulence abated by being transplanted to animals of different species. Pasteur likewise discovered that there was some substance in the spinal nerve tissues of a dog affected with rabies which would produce a form of disease even more virulent than the original; that this substance or virus could be so manipulated as to produce an extremely mild form of the disease, and finally a process was developed by which the system of an animal could be so trained and reënforced as to be invulnerable to infection with the most virulent virus produced. That is, the toxic element of the disease could be made to provide its own specific anti-toxin.

There are three prominent theories to account for the manner by which inoculation secures immunity. The first, and the one on which the anti-toxin treatment of diphtheria has been principally developed, is the one advanced by Behring and Kitasato. It assumes that the inoculation of the chemical poisons secreted by microbes during growth brings about a condition of tolerance in the body inoculated so that eventually it is prepared to withstand not only the effects of enormous doses of the poison in question, but also those of the very microbes producing the poison. This immunity is presumed to be due to the formation of an anti-toxin in the blood.

The second theory is based on the assumption that the part of the body in which any given germ flourishes is rendered sterile after it has borne a crop, so that afterward germs may be introduced with impunity, as they cannot take root and spring up.

The third is the well-known "phagocyte theory" of Metchnikoff—that is, the cells of the body become habituated by the milder form of the disease and are thus seasoned to resist attack from the disease itself. They become veteran cells, and like veterans can take care of themselves. In fact, they acquire the knack of swallowing and digesting the invading microbes.

It will be observed that the first-mentioned theory, which is also the latest to be promulgated, introduces an element which amounts to a radical innovation. The older theories assumed the presence of a specific microörganism as the immediate casual factor in the production of the disease. These hypotheses became untenable for a variety of reasons; one insurmountable difficulty being the failure to identify the predicated specific microörganism whose presence was required to be more than hypothetical. In many of the otherwise typical infectious diseases the keenest researches with the microscope and culture-tube have utterly failed to demonstrate any bacteria that can be alleged specific with a degree of plausibility.

About five years ago Salmon and Smith, of the Bureau of Animal Industry of the United States Agricultural Department, discovered that the metabolic products of bacterial energy when separated from the microörganisms themselves would secure

to the inoculated organism the same immunity as would inoculation with a living culture of bacteria. In other words, it was made evident that the immunizing agent was chemical in nature.

Another advance was obtained when the fact was recognized that there was considerable bactericidal power inherent in the blood of a healthy organism, due to a solution in the blood-serum of certain complex albuminoid compounds.

Pursuing this line of investigation, Behring "established the fact that the blood and blood-serum of an individual which has been artificially rendered immune against a certain infectious disease may be transferred into another individual with the effect to render the latter also immune, no matter how susceptible this animal is to the disease in question" (Krieger). The immunizing agent is the so-called anti-toxin.

Further investigation showed not only that an individual inoculated with it was proof against the toxins of the original disease, but that in an unprotected individual already infected with the original disease inoculation with the anti-toxin would neutralize the preëxisting toxins and cure the animal.

On these two observations hang all the loss and the profits of serum therapy.

It must be borne in mind that this is the barest outline of the subject and is in no sense a critical discussion. The results obtained were secured upon lower animals under the controllable conditions of a special laboratory and at the hands of scientists devoted to a specific and limited subject. The observations may have been correctly noted, and at the same time the field of observation may prove entirely too limited to justify the deduction of general laws from the observations made. In any event, there is a wide chasm between the rabbit in the bacteriological laboratory and the human sufferer among the sons of men.

ABSTRACTS.

SCARLET FEVER, WITH ESPECIAL REFERENCE TO CONTAGION AND PROPHYLAXIS.

Dr. Holyoke (Boston *Med. and Surg. Jour.*) writes:

Scarlet fever in recent years seems to be of a milder type than it was when I began practice more than twenty years ago. Its death-rate in this State is very much less now than it was then. Such variations in type have long been observed, and it is not impossible that severe forms of the disease may again visit us, although it is to be hoped that the continued good work of the health authorities will prevent any very destructive epidemic in the future. Still, this malady, in some form, is always with us; and in large cities it would seem almost impossible to eradicate it, fostered as it is by crowding, filth, ignorance and selfishness.

Besides the oversight of the health officers, the most hopeful means of limiting such diseases should be the influence exerted by the attending physicians. It is not sufficient that the individual patient be successfully treated, but the health of the community should be considered, and thosein charge of such cases be taught how these diseases spread and the best attainable means of prevention.

So far as we know, the virus of scarlet fever is, in most instances, taken into the system with the inspired air; but a number of cases have been reported from drinking infected milk, and we may assume that it is possible for it to gain entrance through any absorbing surface with which it can come in contact.

We are more practically concerned, however, with the origin and mode of dissemination of the virus, in order that we may deal with it at its source. It may be assumed that it is given off from all the surfaces of the body of the scarlet-fever patient. The most productive source is the desquamating cuticle; and when this is thrown off in the dry state and the fine particles are floating in the air, it is in a condition most favorable for reception into the system. In the moist state, as given off from the internal surfaces, it may not be such an immediate cause of danger, but we must believe that forcible expiration can dislodge contagious particles from the air-passages, which, either in the form of spray or dried and pulverized sputum, may be virulent even at an early stage of the sickness. It is possible that the urine and feces, if not disinfected, may contaminate the sewage and become a remote cause of trouble.

The most important means of preventing the spread of scarlet fever is isolation of the patient and the avoidance of all means by which the germs may be conveyed away until after they are disinfected. It is believed that the virus is not carried far by the air alone, although apparent exceptions to this rule have been noted. It is usually conveyed by persons or materials that have been in the vicinity of or in actual contact with the patient.

It is probable that scarlet fever, in most cases, is not very contagious during the first day or two; and if patients are separated as soon as the rash appears, those previously exposed will commonly escape. After this, however, it is certainly contagious as long as desquamation is going on, and although this may in some cases cease in three or four weeks, it usually continues longer and sometimes more than ten weeks. As a routine practice I advise isolation for six weeks from the beginning of the sickness, but sometimes find this period too short.

Our greatest difficulty is to secure proper isolation, especially among the poorer classes. During the height of the illness children are easily restrained, but when convalescence begins and they beg for liberty, it is difficult to impress upon parents the duty of restraint in the interest of public health. Another source of danger is the use, during convalescence, of books and toys which are not afterward destroyed and which cannot be completely disinfected. There is evidently much carelessness in this particular.

I will now report a group of cases which may serve to illustrate some of the points just noticed. In the early part of the present year a number of cases of scarlet fever occurred in the home of the Boston Children's Friend Society, on Rutland Street. The home contained at that time about 70 children, of whom, as nearly as could be determined, 55 had never previously had the disease. The first case appeared on January 17, 1894; others followed, at first in rapid succession, then at intervals of more than three weeks, when on February 10th there were 22 sick. After this there was a period of quiet for about six weeks, when 2 others appeared, on March 27th and 31st; and finally another one on May 1st, making a total of 25 cases.

For a little while we were in doubt as to the origin of the trouble, but in a few days reached the only conclusion which seemed to give a reasonable explanation.

At Christmas some persons connected with one of the Sunday-schools in Newton Centre collected from their scholars a quantity of second-hand toys and picture books, which were presented to our home. According to the reports in the daily papers, scarlet fever was then prevalent in that town, so that it became necessary to close some of the schools. From recent inquiry it is learned that the increase of scarlet fever in the town of Newton, including Newton Centre, began in November, when more cases were reported than during any other of the five months of its prevalence. The toys and books, which filled a barrel, reached the home on Rutland Street on January 2d, and were distributed to the children about eight or ten days later; and within another week the sickness began.

I have not attempted to trace the previous ownership of the toys. There would be manifest difficulty in doing so. But the facts that they were contributed by many persons in an infected district and that a few days after their reception by the children the malady appeared, make a strong probability that some of them were infected with the germs of scarlet fever. As soon as the toys and books were suspected they were collected and destroyed.

As cases of the disease continued to appear long after the destruction of the toys, we naturally inquire whether the later cases resulted from the original cause or from contact with the sick. In support of the first of these views we must remember that the toys and books had been in possession of the children about ten days. They had been widely scattered, and probably sufficiently handled to disengage many of the germs. It was impossible to fumigate the whole house, and it was not attempted except by burning sulphur in the play-room where the toys were first distributed. Therefore it was necessary to wait for the slow process of ventilation to remove the virus, which the cold weather rendered more difficult.

As soon as the children were taken sick they were at once separated, and their bedding and clothing removed and disinfected. The rooms occupied by the sick and their attendants were in a remote part of the building, well situated to insure isolation; and, as far as possible, all communication was cut off from the rest of the house. The management was so careful and the separation so complete that I consider it impossible that any should have become infected from this source.

We may now inquire whether it is probable that the disease continued to spread from contact with those recently affected before they were removed. In order to throw what light I can on this matter it will be necessary to examine the cases more in detail.

The children were divided into two classes, the so-called school-children, over five years of age, and the nursery children, 10 in number, all under five years. I may say that the school was within the building.

The disease began with 2 children on January 17th, 3 on the 19th and 3 on the 20th. These 8 cases occurred in the older or school children, and all were undoubtedly produced by the original cause. Then, at intervals, in the course of the next three weeks, 8 more of the older children were taken sick. How these were infected may be a doubtful question. Some of them might have resulted from contact with incipient cases of the sickness, but I am inclined to believe that the original cause was still acting.

All the remaining cases happened in the nursery. The nursery children had received none of the suspected toys, and after the disease entered the home they were kept closely in their rooms and not allowed communication with the other children. But there was one exception to this. On January 24th one of these small children was allowed to leave the nursery for a few hours and mingle with the older ones in the school-room. Four days later he was taken sick. Eight days afterward another one came down, and I may mention that this child was troubled with a cough. From three to five days after this 4 others became ill, and then there was a long period of rest.

Of the cases just mentioned we need not discuss the first, in which there had been communication with the school-children. The second, occurring eight days later, is of doubtful origin; but there can be little question that the next four, following the second at intervals of three to five days, were infected by it. This seems more reasonable from considering the fact that the second child had a cough sufficient to dislodge contagious particles from the throat.

Three more cases remain to be noticed. Two of these appeared late in March and had been joined about a week before by several convalescent children, one of whom was found to be desquamating, although seven weeks had elapsed since she was taken sick. The remaining case appeared on May 1st, and the only explanation I can give is the following: One of those who had been affected was a girl aged twelve, whose sickness was severe and followed by prolonged desquamation. This was evident for ten weeks, but at the end of seventy-four days she was given an antiseptic bath and set at liberty. Her hair was long and thick. On the day she left the sick-room she went into the nursery, where only two children remained who had not had the disease. She also combed her hair with the comb used by those children. The visit was repeated a day or two later, and six days after her first visit one of the nursery children became sick.

Of the group of cases here reported the greater number may be regarded as due to circumstances largely beyond our control, but the last three could have been prevented by exercising more caution, although it may be said that the children who carried the infection were examined

before leaving the sick-room by a prudent and experienced person. These cases, however, emphasize the need of careful supervision of convalescents and tend to confirm the belief that many instances of scarlet fever result from neglect of this precaution or inability to carry it out.

In the way of prophylactic treatment many internal remedies have been recommended, both to the well, to prevent the development of the disease, and to the sick to prevent its spread. The most of these are such as have an antiseptic effect; and although we may be doubtful of their prophylactic influence on the general system, there can be little question that some of them have a very favorable effect on the mouth and fauces of the scarlet-fever patient, and probably render the secretions of those parts less virulent. Of those that may be classed as mildly antiseptic I still use, in most cases, the old mixture containing chlorate of potash and tincture of chloride of iron in small and frequent doses.

Since the most fruitful source of the germs is the desquamating cuticle, it is evident that the proper management of the skin is the most important part of the prophylactic treatment.

About twenty-five years ago Dr. Budd, of Bristol, England, reported excellent results from the application of olive oil as an aid to isolation. He usually combined a little camphor with the oil, and the application was made freely and often and continued until the patient was "well enough to take a warm bath." Then he was well scrubbed with antiseptic soap and water every other day until four baths had been taken, when the disinfection of the skin was regarded as complete.

Since that time most of the writers whose works I have examined mention the use of oil or ointments, either plain or containing antiseptics, but not all of them insist upon this measure as a matter of much importance; and as far as my observation extends, I do not think this method of treatment is used as commonly as its merits deserve.

Since the beginning of my practice I have always used olive oil as a remedial agent during the height of the sickness; but for some years past I have ordered it very freely throughout the whole period of illness and until desquamation has ceased, for the purpose of preventing the escape of the scales bearing the germs. There may be some advantage from combining antiseptics with it or from using thicker ointment on the hands and feet when the patient is up; but I have been so well satisfied with the use of the plain olive oil that I still continue it, and its simplicity and ease of application are qualities that also recommend it. Much depends on its thorough and long-continued use; and as many of our patients are seen only a few times, it is necessary before ceasing attendance to give explicit directions for the future management of the case. The treatment can be best carried out if the patient remains in bed for a prolonged period; but whether in bed or up, much care must be used when the clothing is removed. Nothing should be scattered about the floor, but all materials carefully gathered in a sheet and placed at once in the receptacle for disinfection. After getting up the hands should be well cleansed and constantly anointed, and I have known some mothers to keep the patient's hands wrapped in cotton cloths to prevent the scales from escaping.

Since adopting the measures here mentioned, my impression is that the disease is much less contagious than before. I have kept no records of cases, but those of recent date can be recalled, and I remember none in private practice within the past year when it spread to any other person after my first visit, even when isolation was impossible. Such results may be in part accidental, but I will mention some of the cases to show the extent of exposure.

Case I.—Family containing five children between the ages of one and eleven years, none of whom was protected by previous attack. Two of these were taken sick at the same time, and at my first visit the rash was just appearing. In one the sickness was moderately severe, in the other very mild. It was impossible to keep the other children out of the sick-room, and the mother took care of them all. Three other susceptible children in the same house were occasional visitors, but none became affected.

Case II.—Family containing five children who had never had the disease. Ages two to twelve years. One of these, aged six years, had a moderately severe attack. Rash quite abundant. Patches

on tonsils. He was kept in a separate room, but the other children were on the same floor, and the mother took care of all. No other case occurred in the family.

CASE III.—Family of three children who had never previously had the sickness. Ages six to ten years. The youngest had a severe attack with abundant rash. One of the others slept much of the time in the sick-room, and they were all taken care of by the same person. The two older ones remained well.

CASE IV.—Family containing four young persons who had never had the disease. The youngest, aged eight years, became affected. Rash well marked. Isolation was impossible. The others were frequently in the sick-room, and a woman living in the same house, mother of two small children, often visited the sick boy. No other case of the sickness occurred.

Other recent cases with a like result could be reported, but I have selected those in which there was the greatest exposure of susceptible persons.

It may be said that scarlet fever at the present time is of a mild type and not very contagious; but the group of cases first mentioned tends to show that under certain conditions the disease may be taken now as readily as ever.

DEATH-RATES AND RACE.

I will not weary you with further details of figures, which those of you who are specially interested in the subject will find in the reports of the vital statistics of the eleventh United States census, but will merely say that the corresponding data from Boston, Philadelphia, Baltimore, Washington, and from the New England States as a whole, taken with those from New York State and New York City and with those derived from a special investigation of over 10,000 Jewish families, including over 50,000 persons, lead to the following conclusions as being probable for the United States:

1. The colored race is shorter-lived than the white and has a very high infantile death-rate; it is specially liable to tuberculosis and pneumonia and less liable than the white race to malaria, yellow fever and cancer.

2. The Irish race has a rather low death-rate among its young children, but a very high one among adults, due to a considerable extent to the effects of tuberculosis, pneumonia and alcoholism.

3. The Germans appear to be particularly liable to disorders of the digestive organs and to cancer.

4. The Jews have a low death-rate and a more than average longevity; they are less affected than other races by consumption, pneumonia and alcoholism, but are especially liable to diabetes, locomotor ataxy and certain other diseases of the nervous system.—*Dr. J. S. Billings in Med. Rec.*

A NEW SYMPTOM OF CANCER.

G. Bogdan (*Brit. Med. Jour.*) relates the case of a woman, aged forty-eight, who suffered from cancer of the stomach. The disease had gone through a long period of latency. The patient presented on each cheek a patch of wine-red discoloration formed by the dilatation of the superficial venules; the stain showed out sharply against the pale yellow of the surrounding skin. On the strength of this symptom alone Bogdan was able to make a diagnosis of probable cancer at a time when there was yet no other manifest sign of that affection. He looks upon such superficial varicosities on the cheeks as a valuable help to the early recognition of certain cancers; he has seen it in about two-thirds of the cases of cancer which have come under his observation; it is particularly frequent in cases of epithelioma of the stomach and uterus, but less common in malignant disease of other organs.

CURRENT LITERATURE REVIEWED.

IN CHARGE OF ELLISON J. MORRIS, M.D., AND SAMUEL M. WILSON, M.D.

BUFFALO MEDICAL AND SURGICAL JOURNAL.

Dr. George F. Cott writes of

The Surgery of the Accessory Sinuses.

Inflammation of the sinuses is apt, he says, to be mistaken for ozena, and this is excusable when it occurs in a case of acute nasal catarrh, but when chronic it may be readily recognized.

The posterior ethmoidal and sphenoid cells open by one or more foramena into the superior meatus; the frontal sinus, the anterior ethmoidal cells and antrum of Highmore into the middle meatus; the nasal or lachrymal duct into the inferior.

In disease of the frontal sinuses headache is more or less constant, and in addition if the pus is not free to escape the roof of the orbit will be subject to pressure, causing displacement of the eyeball, amaurosis and diplopia.

If pus escapes it is bright yellow and it will be found issuing from the infundibular opening in the middle meatus by cleansing the parts with swab or spray and then applying cocaine solution.

In acute cases the ordinary treatment for the nasal affection is sufficient, but in chronic cases it is necessary to remove hypertrophied tissue from the middle turbinated bone, or even to remove some of the bone to give free exit to the pus. In some cases it is necessary to make an opening over the inner angle of the eye, to thoroughly clean the sinuses, and to pass a probe through the infundibulum into the middle meatus, followed by washing and by packing with gauze.

When the sphenoidal sinus is at fault, bright yellow pus is found dripping into the pharynx from an opening above and posterior to the middle turbinated bone. Deep-seated pain involving all the distribution of the fifth nerve is sometimes very severe. Pressure on the optic nerve may cause impaired vision or sudden total blindness.

When unrelieved the pus is apt to lead by pressure to ptosis, strabismus and exophthalmos and to affect the bony structures.

The treatment consists in removing obstructions and in opening the sinus by electric or dental engine, aided in every case by the rhinoscope. The operation is of course delicate on account of the danger of penetrating the brain.

The sinus being opened, dead bone and degenerated tissue are to be thoroughly scraped out.

In cases of ethmoidal involvement, if the secretions are retained, the following symptoms develop: Pain referred to the back of the eye and the root of the nose, impaired sense of smell, pus containing gritty particles from the broken-down bone. When the pressure of the pus is great enough the bone gives way, and a swelling may be found at the inner angle of the orbit and crepitation is found on pressure there.

The treatment consists in removal of the anterior part of the middle turbinated bone, exposing the opening into the ethmoidal cells.

The cavity is then washed or may require to be scraped and the nose packed with gauze or wool. As in sphenoidal disease, the operation requires dexterity.

In disease of the antrum of Highmore there are pain and a sense of fullness and weight below the orbit, and if the destruction last long the pain may become very severe. Difficult mastication, with a feeling as though the teeth were too long, may be noticed. At night pus may be felt running back into the pharynx, but in the upright posture is discharged from the nose.

The modern means of diagnosis is the use of the incandescent lamp. A small lamp is placed in the mouth, the lips are closed, and the room is then darkened and the current turned on. The presence of pus in quantity is shown by obstruction of the light.

The treatment is puncture through the inferior meatus or, better, through the alveolus if a tooth be missing. If carious bone be found, it will be necessary to make another opening with drill and chisel, clear the antrum and pack with gauze. Otherwise daily syringing will be sufficient.

Dr. A. L. Hall writes of the

Home Treatment of Hay Fever.

Hay fever is, he thinks, due primarily to a condition of neurasthenia, and the proper mode of treatment lies in combating this condition. The irritable respiratory apparatus responding to the pollen of plants is secondary in etiological importance.

Some cases are detailed in which treatment on these principles has enabled the patient to remain at home and yet escape without very great discomfort.

A prescription in which the author places considerable reliance is the following:

Liq. potass. arsenitis	
Ext. nucis vomicæ fluidi.....	āā ʒ ij
Ext. cinchonæ fluidi (detannated)..	
Alcoholis.....	ʒ iij
Syr. aurantii.....q. s.	ad. ʒ xvj

M. Sig.: ʒ j or ʒ ij t.i.d., with or after meals.

The use of this preparation for at least six weeks before the annual appearance of the disorder and its continuance during the three months following is declared necessary.

Dr. A. L. Benedict writes of

Atonic Dyspepsia.

The term, he says, fell into disrepute for a time and was regarded as indicating imperfect diagnosis on the part of any one using it. Sometimes, however, after thorough study

of a case this term seems the most suitable description. Pepper recognizes the expression and applies it to a condition causing a large, flabby, tooth-marked tongue, not necessarily coated, sense of weight in the epigastrium, development of flatus, sluggish bowels, urine loaded with urates, etc.

It is improbable that there will be lack of nourishment if digestion be perfect, and the distention of the stomach is not so much due to muscular atony as it is to fermentation by micro-organisms and due to lack of hydrochloric acid.

Many healthy persons masticate imperfectly, and this fact should more than offset the want of muscular churning movements in a case where the food eaten was soft.

In atonic dyspepsia the lack of hydrochloric acid leads to insufficient digestion of proteids, therefore delayed absorption and sluggishness of the muscular movements of the stomach and the intestines.

In the irritative type the ptyalin digestion of carbohydrates is inhibited by the excess of hydrochloric acid, and the irritation caused by this excess may lead to gastric ulcer. "In high grades of acute gastritis, in the late stages of cancer and of chronic catarrh, and at the approach of death in any disease there may be a scarcity of pepsin, but under these conditions only. There is therefore no excuse for the administration of this ferment except in those cases which are better treated by the use of predigested food."

The ultimate cause of atonic dyspepsia is constitutional depression due especially to prolonged worry. It is often the first symptom of tuberculosis. Once established it leads to increased depression.

Physical examination will show the stomach relaxed, perhaps, and sagging below its normal level, but it is not dilated. Chemical examination of the contents is important, and the writer does not think a complete diagnosis possible if this be neglected. Moderate acidity will usually be found, but the hydrochloric acid is so reduced in amount that frequently it is not evident from the use of ordinary tests.

The treatment the author advocates is the administration of well-diluted hydrochloric acid. Usually from six to twelve minims of the officinal dilute acid may be given an hour after meals. If more is necessary, it may be given well diluted at short intervals at about the same period of digestion.

Since hydrochloric acid is formed from the chlorides ingested common salt should be freely used, but the author declares the use of pepsin a sign of ignorance.

To stimulate secretion and absorption strychnine may be given before meals. Hot water is also beneficial, and if a small quantity of soda be added it will serve the additional purposes of washing away any accumulated mucus and increasing the formation of acid.

Mention is made of a favorite application: the use through the stomach-tube of a spray of an oily solution of menthol, which the author has found very beneficial.

In the discussion of this paper the question arose whether lactic acid occurs normally during digestion. The author had found a substance which responded to the ordinary tests present in every case examined, and apparently most markedly present at the end of the first hour. Another speaker quoted Boas' belief that when lactic acid occurs cancer is present.

Another member present thought a properly chosen diet was of more benefit than medicine, and in choosing this cautions his patients to avoid the skin of all fruits and vegetables—grapes, apples, etc.—and regards cabbage as in the same list.

Fresh meats, fish, eggs, milk, stale bread, etc., constitute his main reliance, and he feels great confidence of successfully treating any case in which this diet is adhered to.

Dr. Wm. Redin Kirk writes of the "Constitutional Treatment of Diseases of the Female Sexual Organs" (mainly by a proprietary mixtûre).

Tea as a Possible Source of Plumbism.

The source of lead in most cases of plumbism is easily found. In districts where home-made wine is plentiful, the plumbism can be found due to the glaze of the earthen pots in which the wine stands for some days. In 15 cases carefully investigated, 6 were due to the wine. In 5 the tea contained lead—no other source could be found. In 2 wine was a possible source, but tea which contained lead was the more probable. In 2 no cause could be found, but the tea drunk before the illness could not be excluded.

In 1886 cases of plumbism in Odessa were traced to tea packed in lead-lined chests. The lead may be mechanically rubbed off from the chest lining. The lead lining may be acted on by the tea fermenting inside or from the chest being made of green wood. Carelessness in packing is another cause—traces of copper and chips of lead paper have been found in several small packets of tea. Infusion of tea, upon experiment, has been found to have a powerfully solvent action upon lead; in this way chips of lead paper are a danger. Of 22 different kinds of tea, 17 contained lead; 1.375 mlgms. of lead per pound was the smallest amount found and 18 mlgms. the highest. The average of all contained 5.962 mlgms. per pound. It was most unevenly distributed—of two packets of the same brand bought at the same time in the same place, one contained 1.6 mlgms. per pound and the other 18 mlgms. How far small doses are dangerous is difficult to state. One case is said to have been poisoned where only 1-357th grain of lead per gallon was found. Water containing 1 20th grain per gallon should be considered dangerous. Tea containing 6 mlgms per pound (the average of all the estimates) is equal to water containing 1-77th grain per gallon. Tea containing 18 mlgms. per pound equals water having 1-25th per gallon. Tea containing such quantities may cause plumbism in susceptible individuals, and would greatly increase the dangers from other sources, as water or home-made wine.—*Lancet.*

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Virchow on the Serum Treatment of Diphtheria.

The Berlin correspondent of the *British Medical Journal* writes that Virchow gave his opinion with characteristic caution. He said that he had been inclined to be skeptical as to the good results obtained in diphtheria last summer in the Kaiser and Kaiserin Friedrich Hospital, as he thought none of the cases was of the severest type. In August, however, the supply of antitoxin fell short, and since then the mortality from diphtheria in the hospital had risen remarkably, showing that the epidemic was severe in character. He summed up his opinion as follows: The serum exercises a strong protective influence for weeks, perhaps months, say three or four months. Whether this influence be lasting can be shown only by further experience. Moreover, this alone can furnish the answer to the cardinal question, Is it a specific for diphtheria? But much has already been gained when, for instance, it is possible in a family where three or four children are down with diphtheria to immunize even one child, and this, in all probability, can be done by the serum.

Antiseptic Mouth Wash.

E. Maurel (*La Med. Mod., Gaillard's*) presents the following formula:

Alcohol	ʒ ij
Tincture of eucalyptus	ʒ v
Tincture of cinnamon	ʒ ijss
Tincture of rosemary	ʒ j¼

M. Sig.: A teaspoonful to a glass of warm water.

Treatment of Seborrhœic Eczema in Children.

Feulard (*Jour. des Prat.*) observes that attention must be given in the first place to the diet, which should be limited to milk, with the addition, in older children, of eggs. In the local treatment the first step is the removal of crusts, which may be effected by using warm coal-tar lotions, preceded, if necessary, by poultices. After the crusts have been removed he uses gauze compresses soaked in a solution of resorcin (6 in 1,000). These are kept constantly applied to the scalp by day and are applied frequently to the face. By night an ointment is used, consisting of one part of balsam of Peru to thirty parts of vaseline. Later he uses fine starch powder or a powder consisting of equal parts of starch and carbonate of bismuth. Recovery is rapid if the instructions as to diet are strictly observed and the dressings used with regularity.

Hints on Treatment of Diabetes.

Dr. Solomon Solis Cohen, writing on the different forms of diabetes mellitus, gives this suggestive advice with respect to treatment: Examine the urine frequently, and administer alkalies freely if this excretion be too acid or if the sugar have diminished suddenly. As constipation is a precursor of diabetes coma, it must be prevented by giving phosphate of sodium in doses according to the effect produced. This may be combined with 1-64 grain of arseniate of sodium, a useful expedient. Strontium bromide in doses of twenty grains may be given in cases of diabetes in the gouty and obese. It is a stomach tonic, promotes digestion, relieves flatulence, increases general nutrition, and keeps the blood moderately alkaline. Strontium lactate can be alternated with the strontium bromide. From time to time arseniate of strychnine, 1-128 grain six times daily, is given as a general nervous tonic and stimulant. Dr. Cohen believes in codeine; and, following Sir Benjamin W. Richardson, he gives it in solution with hydrogen dioxide. Thus:

Codeinæ phosphatus	grs. ij
Spiritus rectificati	drams iv
Acidi phosphorici diluti	drams ij
Glycerini	drams vj

Solutionis hydrogen dioxidi (10 vol.) ad ounce of misce.
Two teaspoonfuls to be taken in three ounces of water.

With this is enjoined an alkaline course, arsenic being sometimes added. Hydrogen dioxide, ozonic ether and oxygen have been advocated on the presumption that they bring about increased oxidation of the sugar or secondary products circulation in the blood. Dietetic treatment of course precedes medication. Don't try to cut off bread and potatoes together. Gluten bread is not reliable and not palatable. Try to make up by fats for the exclusion of the starches. Keep your patients warm and protected; cold is their greatest enemy. Examine the urine for organic acids and keep the blood alkaline. In the matter of diet be strict enough to diminish polyuria and glycosuria, and if possible secure their disappearance, provided you can at the same time keep the patient comfortable, but under any circumstances make the patient comfortable.—*Ther. Gaz.*

Morning Diarrhœa and Its Treatment.

Dr. P. L. Brunton (*Med. Week*) considers the special form of diarrhœa which occurs in the morning as due to a chronic state of irritation or congestion of the sigmoid flexure or of the rectum. If this congestion is too frequently repeated, it is gradually changed into an inflammatory condition which may ultimately result in the production of intestinal ulceration. In this form of diarrhœa

the region of the sigmoid flexure is very tender. On palpation the intestine is frequently found to be contracted to a thick, hard band.

As the capital point in the treatment of this affection is mentioned absolute abstinence from the ingestion of liquids of any description for a period of from twelve to fifteen hours preceding the moment at which the diarrhœa usually appears, that is to say after five or six o'clock in the evening. The most that should be permitted, if the patient suffers greatly from thirst, is a few mouthfuls of liquid. During the day beverages may be allowed, but only in moderate quantities. In addition, the irritability of the intestine is to be allayed by the administration of bismuth subnitrate and sodium bicarbonate. In obstinate cases, it is stated, massage may be advantageously employed.

Intrarectal Application of Ice.

Drs. Pasterunatzky and Koulbine (*Sem. Med.*) are reported to have successfully resorted to the intrarectal introduction of ice in the treatment of excessive hemorrhoidal bleeding, in rectitis, weakening of the anal sphincter from persistent diarrhœa (sometimes followed by rectal prolapse), ulceration and cancer of the rectum, and, finally, collapse due to poisoning by opium, morphine, chloroform, alcohol and analogous substances.

The pieces of ice should have a conical shape and a length of 20–30 cm. (8–12 in.). They melt in the intestine within four to five minutes. From two to ten, and even more, may be introduced daily.

These intrarectal applications of ice for a moment produce a rather disagreeable sensation, accompanied with contraction of the sphincter; but, on the whole, they are usually well tolerated, it is stated. They exert upon the intestine a hæmostatic, antiphlogistic and sedative influence, and constitute a very prompt palliative remedy against false labor pains, pain in the rectum and other annoying sensations often felt in that region (such as burning, prickling, intense pruritus, throbbing, heaviness, etc.). With febrile patients they bring about an abatement of the fever and ameliorate their subjective condition. By reflex action, finally, they stimulate the heart and respiration, and also increase blood-pressure, which explains their beneficent action in collapse.

The Cure of Inebriety.

The drunkard is curable in at least one-third of the cases. The basis of cure is forced and prolonged total abstinence, which should be instituted at once. Delirium tremens does not result from suddenly stopping the alcohol; its only results are headache, malaise and sweating. The treatment should be undertaken only where the patient may have calm surroundings and a military discipline; some drink, which will quench the patient's thirst and give him pleasure, should be substituted for the alcohol. Treatment should last at least for one year, and before it is terminated the force of the patient's resistance should be tried. When the treatment is concluded some moderate surveillance should still be exercised. If a certain trade or profession has been a causative factor it should be abandoned.—*Marandon de Monytel in Annal. Med. Psych.*

Dental Manifestations of Gout.

Kirk (*Lancet*): The coexistence of certain forms of suppurative gingivitis and gouty diathesis has long been known. Dr. Peirce, of Philadelphia, has shown that the calcareous deposits taken from the roots of teeth lost from pyorrhœa alveolaris contain, besides the usual calcium carbonate, considerable uric acid and urates of calcium and sodium. He concludes that the deposits upon the roots of such teeth are not salivary, but hemic in origin, and that pyorrhœa alveolaris is simply a local manifestation of gout. As further evidence of the correctness of these conclusions, the author has found that after thorough local treatment the gingivitis will disappear and have no tendency to return. He has found a marked acidity of the secretions of the mucous glands of the mouth in such cases, which brings about local decalcification of the enamel. He first used cream of tartar to correct this acidity. He afterward had a lithium tartrate prepared, which gave much more satisfactory results than any other alkali used. The promptness with which it acts is sometimes astonishing. After three doses of five grains each all symptoms sometimes subside.

Morphinomania in the Medical Profession.

Dr. Jules Rochard, in the *Union Medicale*, draws a gloomy picture of the increase of the morphine habit in France and elsewhere. The habit, he finds, becomes incurable at the end of six months of indulgence. The fair sex and the doctors are, in his opinion, the most deeply addicted to morphine. He draws an unpleasant comparison between the behavior of each kind of delinquent. Women, he says, delight in declaring how they indulge in this vice, and show ornamental hypodermic syringes to their friends. Dr. Notet states that a lady having broken the needle of her syringe in a remote country village, wounded her skin with scissors and thrust the stump of the needle into the wound, injecting herself in this manner till a new syringe arrived from Paris. Men, Dr. Rochard declares, and especially medical men, the bulk of male morphine injectors, take the greatest pains to hide their vice. Hence the precise number cannot be estimated. He believes, however, that doctors and persons associated with them form nearly half the total of men addicted to morphine.—*Med. Rec.*

Breakfast for Chlorotic Girls.

Dr. Carl Von Noorden, in the *International Medical Magazine*, speaking of the dietetic treatment of chlorosis, says: "Most chlorotic

girls feel weakest and worn out during the hours of the forenoon and incapable of any proper kind of work. This condition is uncomfortable and directly harmful from the educational point of view. The best remedy is the English fashion of a good hearty meal at the beginning of the day. Chlorotic girls are advised to drink half a liter of milk of the best quality while still in bed, and to do it very slowly, taking fifteen minutes to drink the quantity prescribed. Half an hour later they should rise and be rubbed with a dry, rough woolen towel. Then comes the breakfast, consisting of a small cup of tea, one or two slices of buttered toast and plenty of meat. Two hours and a half later some bread and butter is to be eaten, together with two eggs, this to be followed by a quarter of a liter of milk. A glass of sherry is now permissible if special reasons warrant it. This morning regulation of diet makes the forenoon hours quite comfortable. Fixed rules for other meals are of less importance."

Diet in Gout.

A. Bogdanoff has studied in Professor Obolenski's clinic the influence of animal, mixed and vegetable diet in four patients, three of whom suffered from gout and the fourth from round ulcer of the stomach. The latter patient was given only milk as a food. The mixed diet was found to cause the greatest daily excretion of urine and of uric acid. The specific gravity was between that of the urine in vegetable and that in animal diet. The body-weight increased most under the influence of vegetable diet, diminished under mixed diet and fell greatly under meat diet. In the fourth patient, although the daily quantity of urine was as great, with a slightly acid reaction, the quantity of uric acid was small. The author concludes from these experiments that the diet of gouty persons should not be heavy, but nourishing, and tending to increase the number of white-blood corpuscles. For this purpose mixed diet answers best. Pure meat diet acts badly from a psychical standpoint, frequently causing a great antipathy to meat, a tendency to eat little and to drink less, and in this manner diminishing the quantity of urine considerably. Constipation is also often observed.—*Jour. Med. and Hyg.*

Tannigen, a New Intestinal Astringent.

Meyer (*Deutsche med. Woch.*) calls attention to the inefficiency of most astringents upon the lower bowel because of their destruction in the stomach or upper bowel, the large dose in which they must consequently be exhibited, and the deleterious effect of this large dose upon the stomach itself. The new compound is a pentacetate of tannin. It occurs in yellowish-gray powder, is tasteless and odorless and is slightly hygroscopic. It can be heated to 330° F. without change. It is insoluble in cold water and only slightly soluble in hot water. The action of this drug was first tried on cats. It was found that relatively large doses could be taken without interfering with the stomach in any way, and that it had a decidedly constipating effect.

Muller (*ibid.*) has tested "tannigen" on some of his patients, with the following results: The patients take the powder without any ill effects either upon the appetite or the stomach. The drug was so harmless that a definite dose was not ordered, but a knife-pointful was directed three to eight times daily. It was used in chronic diarrhœa, chronic intestinal catarrh, in some cases of recurring dysentry, and in cases of intestinal disturbance in phthisical patients. In most cases the number of stools was decreased on the day after the drug was begun. In some, as in phthisical cases, the good results lasted only so long as the drug was continued. But as soon as the drug was again commenced the diarrhœa stopped. Some of the patients took the drug for several weeks without ill effects or lessening of the good effects. The drug was also tried in a small epidemic of acute diarrhœa, and the disease in all the cases was brought quickly to an end. In the acute and subacute diarrhœas of children the drug is valueless except the diet be changed. It is also without good effect in the atrophic cases of nursing infants. He concludes that it is of most value in chronic diarrhœa and is actually curative in these cases. He thinks that it is also of great value in the diarrhœa of phthisical patients, where it can be given for a long while and will not interfere with the appetite or digestion.

SURGERY.

Cream of Tartar in the Treatment of Gonorrhœa.

Dr. Oteri (*Jour. de Med. de Paris*) has employed the cream of tartar in 280 cases of gonorrhœa, bubos, chancres and operations on the prepuce. On account of its mild action it is of service in urethral injections, even to five a day. It subdues the inflammation and arrests the discharge. It is possessed of eminent antiseptic and absorbent properties. In profuse suppuration in wounds or cavities with sinous or necrosing walls it will yield good results if applied locally. In bubos, chancres and syphilitic ulcerations, as well as in balanitis, he has found it a good local application. It is cheap, devoid of odor, painless and easily handled.

Abscess of the Hand as a Complication of Gonorrhœa.

As a recent contribution to the long list of complications of gonorrhœa which have been shown to be due to the presence of the gonococcus in the remote lesion, we have the report of a case by Horwitz (*Wein. Klin. Woch.*), in which a young man, twenty-seven years of age, who had suffered from gleet for a year, was affected by an abscess on the back of the hand. Examination of its contained pus showed the presence of the gonococcus of Neisser, both microscopically and in cultures.

In a carefully compiled introduction Horwitz reviews the cases of a similar nature which had been published up to the time of his writing.

Electric Effluvation for Chronic Leg Ulcers.

Dr. Marquant (*Med. Week*) has obtained excellent results from static electricity in the treatment of chronic leg ulcers, especially those of a varicose character. The method employed, which was originated by Professor Doumer, of Lille, is as follows: The sore is first washed with an antiseptic solution (perchloride of mercury or carbolic acid in feeble proportions) and then covered with a thin layer of absorbent cotton. The patient is placed on an insulating seat and connected with the negative pole of an electrostatic machine. The electrode is then approached to the sore, keeping it, of course, sufficiently far away so that no sparks are discharged, though near enough for the production of the electric souffle or wind. The effluvation is continued for ten minutes, after which the wound is dressed. The sittings are usually repeated three times a week.

The dressing used for the patients treated by Professor Doumer and Dr. Marquant consisted at first in sprinkling the sore with powdered subcarbonate of iron and covering it with aseptic cotton; but later on the carbonate of iron was suppressed and a simple application of absorbent cotton-wool resorted to. As this dressing is only renewed twice a week, the effluvation is practiced once in every three times through the layer of cotton, which, therefore, should be as thin as possible.

Treatment of Contusions and Lacerations of the Urethra.

Dr. Reineking formulates the treatment as follows:

1. Make careful attempts to introduce a soft catheter, and if successful leave it in place for five or six days, irrigating the bladder daily with boric-acid solution. After that time the reintroduction, if necessary, will generally be easy.

2. Avoid metallic or other stiff instruments; this will also do away with the necessity of general anæsthesia for purposes of catheterization.

3. When a soft catheter cannot be introduced, an external urethrotomy should be performed. It should be done at the earliest possible time. so as to avoid extravasation of urine and infection of the peri-urethral tissues.

4. If for any reason a urethrotomy cannot be done, we have in supra-pubic puncture a safe, efficient and easily executed procedure for purposes of temporary or even permanent relief.

5. As a substitute for puncture, supra-pubic cystotomy may be resorted to.—*Milwaukee Med. Jour.*

Gunshot Wounds of the Intestine.

In an article on this subject Dr. Hefeelfinger in the Texas *Courier-Record* draws the following conclusions:

1. Laparotomy is the only rational procedure in all cases of gunshot wounds of the abdomen where there is reasonable evidence that the ball has entered the abdominal cavity, and each moment's delay will materially lessen the chances of recovery.

2. If there is a reasonable doubt as to whether or not the ball has entered the abdominal cavity, give the patient the benefit of that doubt by doing an early exploratory operation for diagnostic purposes.

3. In wounds of the pancreas complicating gunshot injuries of the intestine a resection of this gland may be done, care being taken not to include the head or common duct, as death invariably follows such procedure.

4. The segmented catgut rubber ring being unaffected by the imbibition of intestinal secretion is one of the very best aids in circular enterorrhaphy or lateral anastomosis.

5. A ring composed wholly of catgut is entirely worthless as an intra-intestinal support on account of its highly absorbable qualities.

6. When the Lembert stitch includes only the serous or a part of the muscular coat they do not, as a rule, ulcerate their way into the bowel, as is claimed by some, but usually become encysted and remain near their place of introduction.

7. An intestinal wound when properly treated usually becomes securely sealed in from six to twelve hours by the formation of plastic peritoneal exudation; but this must not be too confidently relied upon, as it may be very materially retarded.

8. If there arise evidences of suppurative peritonitis, do a second abdominal resection, disinfect the cavity and apply drainage.

Cancer a Local Disease.

The evidence for this doctrine has been strongly presented by Dr. Jennings, in his work on "Cancer and Its Complications," the second edition of which has been recently published in London. If cancer be a local disease, it is imperative that not only those tissues which are seen to be subjected to cancerous infiltration, but some of the surrounding tissues and the neighboring lymphatic glands should be taken away by means of the knife at as early a date as possible. The amount of personal observation given in support of this method of treatment is not very great, but the careful analysis of the work and opinions of others and the comparison of the methods of termination of the disease under different methods of treatment amply warrant Dr. Jennings in drawing very wide and general conclusions.—*Brit. Med. Jour.*

New Observations in Gonorrhœa.

At the recent meeting of the German Dermatological Association considerable time was devoted to the discussion of the etiology

of gonorrhœa, and among the interesting points brought out, an observation by Wertheim is deserving of especial attention. This careful investigator has found that gonococci obtained from the secretions of chronic gonorrhœa can be cultivated so as to acquire a high degree of virulence, and when inoculated in the urethra of the patient from whom they were derived will give rise to an intense gonorrhœal inflammation. It has been quite frequently observed that patients suffering from latent gonorrhœa at the ti ue of marriage have infected their wives, and at a later period acquired from them in return an acute urethral inflammation. Wertheim's experiments are, therefore, of importance in affording a rational and scientific explanation of this clinical observation.—*Inter. Jour. of Surgery.*

Antiseptic Treatment of Burns.

Wilbouchewitch (dissertation, Paris) concludes an article with the above heading in the following wise:

1. Fresh superficial burns, as well as deep ones, can heal under antiseptic treatment without the production of pus.
2. If pus is produced the wound is disinfected, and the course remains the same as if non-infected. But if the pus is of long standing and the wound begins to granulate, then disinfection is not possible.
3. To disinfect widespread burns an anæsthetic will often be necessary, and to this end chloroform is best suited.
4. If the wound is non-purulent the unnecessary use of an antiseptic hinders the healing process.
5. Antisepsis is the best analgesic.
6. Burns heal rapidly under the antiseptic treatment. Burns of the second degree require eight days; of the third degree, from two to three weeks.
7. Burns of the second and third degree heal without trace remaining; of the fourth degree, cause a scar, which does not retract, while this will be smoother the less the amount of pus.

Pott's Disease in Children.

Pott's disease in children is so often recognized so late in its course that all hope for improvement is futile. The early symptoms and signs which should always be looked for are laid down by Dr. Dillon Brown in the *Archives of Pediatrics* in the following list of different points:

1. The pain, general disability and sickness are out of proportion to the apparent amount of spinal disease.
2 The onset is alarming and the progress of the disease more rapid than in tubercular caries—the paralysis being an early symptom and the deformity appearing even in a few weeks after the beginning of the symptoms.
3. The local pain is intense; and the peripheral pains, the deformity, the extreme spinal disability and paralysis, including incontinence of urine and feces, rapidly grow worse in spite of rest in bed and instrumental support.
4. Secondary disease soon appears, rapid emaciation and marked cachexia are seen, and the patient does not live more than six or eight months.

Whether a vertebral caries is due to syphilis or to tuberculosis is of immense importance as regards prognosis and treatment. In both diseases the symptoms are almost identical, and the diagnosis must be based upon the history, the presence or absence of other evidences of syphilis and the result of treatment. In tuberculosis there is more likely to be an evening rise in temperature, and the pus and debris may contain tubercle bacilli. Syphilis is suggested by nocturnal pains and the involvement with chronic disease of some other joint or joints or some other part of the spine.

Double Suppurative Orchitis, Causing Peritonitis and Death.

Hornus (*Centralblatt fur Chirurgie*) reports a very unusual case in which a soldier without having received an injury, without gonorrhœa, mumps or any other preceding disease, was suddenly attacked by an acute double suppurative epididymitis and orchitis which spread up the spermatic cord to the peritoneal cavity. Suppurative peritonitis followed with death in five days from the onset of the trouble. At the autopsy the testicular substance was found to be replaced by pus. It should be mentioned that at the time there were some cases of mumps in the same barracks.

GYNECOLOGY.

The Treatment of Inflammatory Diseases of the Pelvis.

In a paper on this important subject Dr. J. Henry Carstens, in the *American Journal of Obstetrics*, speaks strongly in favor of conservative treatment and urges the necessity of proper treatment by the general practitioner, who is usually the first to see them. He closes in the following words:

1. Let the general practitioner most conscientiously and carefully treat gonorrhœal infection in women.
2. Let the family physician and obstetrician most carefully manage confinements aseptically, and in the treatment of miscarriages be most thorough and not trust the vis medicatrix naturæ, but carefully clean out the uterine cavity.
3. Girls or young women who have leucorrhea and pelvic pain, the result of accident or not, should be most carefully and early treated before mischief has been done.
4. In cases of acute inflammation judge each by itself. If the symptoms are mild, palliative treatment with absolute rest will be proper and an operation can be performed later.
5. Cases of six or eight weeks' standing with sepsis should be operated on promptly.

6. When operating try and remove all diseased tissues if you expect your patient to get well promptly and perfectly. If you cannot and a second operation is necessary, tell your patient or the friends immediately, otherwise you will bring abdominal surgery into bad repute.

Hysterorrhaphy for Retroversion.

The operation of stitching the uterus to the anterior abdominal wall for retroversion of long standing has given excellent results. In a paper in the *American Journal of Obstetrics* on "Mechanical and Surgical Methods of Treating Retro-Displacements of the Uterus," by Alfred C. Carpenter, of New York, the method of hysterorrhaphy is spoken of as one of the foremost at our command. Its technique is simple. With the usual antiseptic precautions an incision is made in the median line of the abdomen midway between the umbilicus and pubes; two fingers are introduced; adhesions, if they exist, are broken up and the fundus uteri brought up into the abdominal wound and grasped with vulsellum forceps. With a knife or small pair of curved scissors the peritoneum is denuded from the anterior surface for about the size of a twenty-five cent piece. Then two or three sutures of heavy silkworm gut are introduced through the uterine tissue, taking a generous hold so there will be no danger of their cutting out by the traction put upon them by the weight of the organ, and at the same time guarding against penetrating the uterine cavity. These sutures are then carried through the entire abdominal wall on either side of the incision and are tied, thus fastening the fundus in the median line midway between the umbilicus and pubes. The sutures are allowed to remain about three weeks to assure firm union between fundus and abdominal wall.

The Glycerine Suppository as a Substitute for the Glycerine Tampon.

Dr. J. T. Graham, in a paper read before the Virginia Medical Society, speaks of the general use of the glycerine tampon. The only way in which glycerine relieves congestion of the uterus and its adnexa is by depleting the engorged vessels of these organs by means of the process of osmosis on account of the great affinity glycerine has for water. Reasoning from this fact, he concluded that glycerine in the solid state would have a greater effect upon the inflamed parts to which it might be applied because it would take up a greater amount of serum and the effect would be more prolonged on account of the gradual dissolving of the glycerine. He therefore introduced into the vagina, close up to the cervix, an ordinary rectal glycerine suppository and held it in place by a pledget of wool. The effect was much superior to that of the glycerine applied with the tampon. He also had glycerine suppositories made containing one or two grains each of alum and thymol. The advantages of the glycerine suppository may be stated as follows:

1. Easy application, as it does not require the use of the speculum.
2. Its greater and more prolonged effect, its action extending at least over a period of thirty-six hours.
3. It can be used in the treatment of the virgin without the use of the speculum and will remain in place without the pledget of wool; or if it seem best the patient can be taught to apply it herself.—*Med. Review.*

PATHOLOGY.

Extreme Cardiac Dislocation

A fully described and clearly illustrated case of extreme left cardiac displacement occurring in a woman of forty-six years is recorded by Heyse (*Centralblt. f. klin. Med.*). The apex-beat was distinctly visible under the angle of the scapula, and the precordial dullness could be made out to the left side posteriorly, immediately over the hepatic and splenic areas of dullness, while at its usual position in the left front there was pulmonary resonance. The etiology of this extreme cardiac displacement is of special interest, which the author, after the exclusion of other forces, especially of old-standing pleuritic adhesion, refers to arrested development of the left lower pulmonary lobe. Analogous observations in literature, on which the author bases his opinions, make this very probable, and we must refer for an estimation of this relationship to the ample statements in the work itself.

OBSTETRICS.

A Sign of Breech Presentation.

In *La Clinique Internal* Pinard asserts that when, in a woman who has passed the sixth month of pregnancy, a sharp pain is produced by placing the hand on the fundus uteri, it may be almost affirmed that there is a breech presentation. The fact is very frequent, although not constant, being present in about 70 per cent. of cases. The pain is sometimes spontaneous, and if version is performed it disappears. Pinard claims that the pain is due to the "irregular distention produced by the rounded mass of the head," but he does not explain how an irregular distention can be produced by a rounded mass.

Vaginal Secretions in Parturient Women.

Last month some statistics were given on antiseptic obstetrics. Since then we read that Doderlein, Winter, Steffek and others claim to have found pathogenic micrococci, particularly the staphylococcus albus and aureus and other pus-producing microbes, in the vaginal secretions of women after labor. On the other hand, Konig examined the vaginal secretions of 100 women after labor who were aseptic at the period of labor, and found in the lochia more frequently the streptococcus, seldom the staphylococcus

aureus and never the staphylococcus albus. In 300 pregnant women he found the vaginal secretions to be acid, and concluded that in pathological conditions the secretions attain a much higher degree of acidity, so that the streptococcus pyogenes could hardly thrive therein, and he was unable to secure cultures of this germ. With the exception of the thrush and gonococcus germ, he concludes that the vagina of every untouched pregnant woman contains nothing pathogenic and is therefore aseptic. He considers vaginal injections of antiseptics dangerous to the ordinary patient, in that they may chemically lessen the resistance of the tissues to bacteria and may increase the intensity of septic endometritis by washing bacteria into the uterine cavity.

This is another instance of disagreement among so-called authorities, and leaves nothing for the humble practitioner to do but read both sides and then use his own good judgment. Every experienced physician knows that unless he carries poison into the vaginal canal on an unclean finger, in private practice, the kind most of us do, there is little reason to fear these pathogenic microbes. Cleanliness alone is all that is usually required either before or after labor; but at the same time it is quite certain that there are advantages and disadvantages in each method. A hot sublimate or carbolic injection during labor shrivels and contracts the vaginal mucous membrane by contracting the capillaries, removes from it its natural lubricating secretion, thus largely augmenting the friction between the head and the vaginal walls, retarding the progress of labor and necessitating greater powers of expulsion. After labor, when it is desirable to use a wash for cleansing purposes only, simple, plain borax dissolved in warm boiled water will be found pleasant and efficient. Let the solution be of about the specific gravity of the blood so as not to encourage osmosis.

Strychnine as a Prophylactic in Weak Labor Pains.

Dr. Duff (*Centralblatt f. Gynakologie*) employs strychnine as a prophylactic in decreased muscular tonus and general weakness of pregnant women, as well as in cases giving a history of weak and irregular uterine contractions in previous labors, distinct weakness and flaccidity of the abdominal muscles and post-partum hemorrhages from faulty contraction of the uterus. He prescribes 1-64 gr. of the drug three times a day, commencing six or eight weeks before the date of the expected labor; eight days before the event the dose may be increased to 1-48 and 1-32 gr. The results are claimed to be very satisfactory.

Unconscious Delivery.

Le Blond (*Jour. de med. de Paris*) related in July a remarkable case before the Medico-Legal Society of Paris. A woman, aged twenty-seven, who had been seduced and deserted, was seized with slight colicky pains, but continued to work. In the course of the following night she was attacked with still more severe pain. Thinking that an action of the bowels would give relief, she sat upon her chamber utensil; on straining, a live child was born. This alarmed her greatly, but she cut the cord with scissors, wrapped the infant in a cloth and walked downstairs, telling the people in the house, in fear and trembling, what had happened. Violent flooding set in. The cord had not been tied. Early in the morning Le Blond saw the patient and found the placenta still in the vagina. He extracted it. The mother and child did very well. Had the child died the mother would have been very strongly suspected of murder, especially if she had attempted to defecate in a public privy, in which case the child would almost inevitably have been killed.

NEWS AND MISCELLANY.

Sanitary Climatology.

U. S. Department of Agriculture,
Weather Bureau,
Washington, D. C., January 2, 1895.

The interest manifested by every class of people in the subject of climate and its influence on health and disease has determined the Honorable the Secretary of Agriculture, through the medium of the Weather Bureau, to undertake the systematic investigation of the subject.

It is hoped to make the proposed investigation of interest and value to all, but especially to the medical and sanitary professions and to the large number of persons who seek, by visitation of health resorts and change of climate, either to restore health or prolong lives incurably affected or to ward off threatened disease.

The study of the climates of the country in connection with the indigenous diseases should be of material service to every community in showing to what degree local climatic peculiarities may favor or combat the development of the different diseases, and by suggesting, in many instances, supplementary sanitary precautions; also by indicating to what parts of the country invalids and health seekers may be sent to find climatic surroundings best adapted to the alleviation or cure of their particular cases.

The hearty co-operation of the various boards of health, public sanitary authorities, sanitary associations and societies and of physicians who may feel an interest in the work is asked to achieve and perfect the aims of this investigation.

No compensation can be offered for this co-operation other than to send, free of cost, the publications of the bureau bearing upon climatology and its relation to health and disease to all those who assist in the work.

Co-operation will consist in sending to this office reports of vital statistics from the various localities. That these reports may be of value, it is evident to all that they should be

accurate and complete and be rendered promptly and regularly. Blank forms of reports have been prepared so as to occasion as little trouble and labor as possible on the part of the reporter, and will be furnished by the bureau on application.

At the very beginning of the investigation it is not possible to outline precisely the channels through which the results obtained will be made public, but it is hoped to publish a periodical devoted to climatology and its relations to health and disease. The publication will probably resemble in size and general appearance the present *Monthly Weather Review*, the subject-matter being, of course, different.

More detailed information will be furnished on application.

MARK W. HARRINGTON,
Chief of Bureau.

MEETINGS OF STATE MEDICAL SOCIETIES FOR 1895.

Society.	Name and Address of Secretary.	Time and Place of Meeting.
Alabama	J. R. Jordan, Montgomery	April 16, Mobile
Arizona Territory	L. D. Dameson, Phœnix	February 5, Phœnix
Arkansas	L. P. Gibson, Little Rock	May 1, Little Rock
California	W. W. Kerr, San Francisco	April 16, San Francisco
Colorado	E. R. Axtell, Denver	June 18, Denver
Connecticut	N. E. Wordin, Bridgeport	May 22, Hartford
Delaware	W. C. Pierce, Wilmington	June 14, Wilmington
Florida	J. D. Fernandez, Jacksonville	April 16, Gainesville
Georgia	D. H. Howell, Atlanta	April 17, Savannah
Idaho	C. L Sweet, Boise City	September 9, Boise City
Illinois	J. B. Hamilton, Chicago	May 14, Springfield
Indiana	F. C. Woodburn, Indianapolis	May 30, Indianapolis
Iowa	J. W. Cokenower, Des Moines	April 17, Creston
Kansas	G. C. Purdue, Wichita	May —, Topeka
Kentucky	Steele Bailey, Stanford	June 5, Harrodsburg
Louisiana	P. B. McCutchon, New Orleans	May —, New Orleans
Maine	C. D. Smith, Portland	June 5, Portland
Maryland	J. T. Smith, Baltimore	April 26, Baltimore
Massachusetts	F. W. Goss, Boston	June 11, Boston
Michigan	C. W. Hitchcock, Detroit	June —, Bay City
Minnesota	C. B. Witherle, St. Paul	June 29, Duluth
Mississippi	H. H. Haralson, Forest	April 12, Jackson
Missouri	F. R. Fry, St. Louis	May 21, Hannibal
Montana	W. M. Bullard, Helena	April 16, Anaconda
Nebraska		
Nevada	W. A. Phillips, Reno	January 14, Reno
New Hampshire	G. P. Conn, Concord	May 30, Concord
New Jersey	Wm. Pierson, Orange	June 25, Cape May
New Mexico	F. H. Atkins, East Las Vegas	July 12, East Las Vegas
New York	E. D. Ferguson, Troy	October 16, New York
North Carolina	R. D. Jewett, Wilmington	May 14, Goldsboro
North Dakota	G. A. Carpenter, Fargo	May 25, Fargo
Ohio	T. Hubbard, Toledo	May 15, Columbus
Oklahoma Territory	C. D Arnold, El Reno	
Oregon	F. Canthorn, Portland	May 31, Portland
Pennsylvania	Wm. B. Atkinson, Philadelphia	May 21, Chambersburg
Rhode Island	W. R. White, Providence	June 6, Providence
South Carolina	W. Pyre Porcher, Charleston	April 14, Columbia
South Dakota	W. J. Mayturn, Alexandria	April —, Alexandria
Tennessee	S. S. Crockett, Nashville	April 9, Nashville
Texas	H. A. West, Galveston	April 23, Dallas
Vermont	D. C. Hawley, Burlington	October 10, Burlington
Virginia	L. B. Edwards, Richmond	
Washington	J. R. Thompson, Seattle	May —, Seattle
West Virginia	G. A. Aschinan, Wheeling	July —, Elkins
Wisconsin	C. S. Sheldon, Madison	May 3, Milwaukee